DECEMBER 25, 1950 35c

American Aviation

THE INDUSTRY'S FIRST NEWS MAGAZINE

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The Long Hard Road

THE MOBILIZATION of the resources, manpower and productive output of the United States is unlike anything in previous history. Mobilize we must, but the timing and the locale of the climax of the struggle of two great powers for economic and ideological control of the globe is a great unknown.

by W. W. P.

In previous struggles the problems and the locale were well defined. Even the timing, to a large extent, was in our control. In the present struggle the shots have been called by the other side, the timing is not likely to be ours, and the locale, and the means of bringing about a decisive conclusion to the struggle, if that is possible at all, are far from clear.

The United States is in a position far more grim and far more fraught with danger than the people generally realize. Alert to the over-all nature of the struggle, yes, but still quite unrealistic as to the means of achieving a decisive conclusion and the sacrifices required.

The greatest of all dangers is land army attrition against the hordes of Asia. And second in importance is the danger of attrition of materiel and basic resources. The Marxists have been fully convinced for three decades that a series of entrapments of manpower and resources can cause the collapse of our western civilization. Even mobilization is on the Marxist program as one vital means of causing eventual collapse, but in this we have no alternative but to arm to the teeth and maintain a conviction that western civilization will survive.

Given time, the vast technological, engineering and inventive resources of the United States and some of its chief allies, can find the means of decisive victory. At the moment, due to the most tragic blunders in our history by our leaders starting in the midst of World War II, we are in an untenable position both in Europe and in the Far East. We have been outsmarted and out-maneuvered. We have been naive, and in some ways are still being naive as well as unrealistic. But January, 1951, is the starting date for an upsurge of preparation for an eventuality which no living man, not even our adversary, can portray in any detail whatever.

How is the world struggle to be determined? What is the climax of this kind of an affair? We cannot march over Russia and occupy it. We cannot

(Turn to Page 6)

Winner of Collier Trophy

William P. Lear, founder of Lear, Inc., Grand Rapids, Mich., chairman of the board and director of research for the company, has been awarded the Collier Trophy "for his outstanding achievement in the development and production of the Lear L-5 automatic pilot and automatic approach control coupler system which makes possible the safe landing of jet aircraft regardless of extreme weather or visibility conditions." (See pages 6 and 51).

REFERENCE COPY

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THE AIR INDUSTRY'S FIRST NEWS MAGAZINE

NEWS SECTION

Volume 14 Number 23

December 25, 1950

a LOOK at the WEEK

Industry reaction to President's call for five-fold increase in plane production within a year was mixed, although pessimists outnumber optimists. Expansion will pose big problems. Manufacturers have been using as rule-of-thumb the fact that production can be tripled within a year under mobilization conditions.

•

Some engine manufacturers weren't so optimistic over President's call, with one stating that best that can be hoped for is three-fold increase. And this assumes no bottlenecks, and access to materials and manpower.

•

New defense set-up is expected to mean early institution of Controlled Materials Plan.

•

Air Force Secretary Finletter hinted in Congressional testimony that AF's current goal of 84 groups by mid-1952 is only interim target and that fiscal 1952 budget will call for substantially larger AF. He also revealed that AF won't be able to make schedule of 68 groups by next July.

•

There's no plan now for establishment of a priorities system on airline travel. Airlines are presently able to handle military and civil traffic.

•

Russell B. Adams, whose term as CAB member expires Dec. 31, may be named to important post of Assistant Secretary of State for Air to negotiate air treaties, rather than being reappointed to the Board. He's devoted considerable time to international aviation during his term as CAB member.

•

Despite recent substantial increases in plane costs, average flyaway costs of an Air Force plane in fiscal 1951 will be less than in 1950. Reason: cost savings on quantity production.

•

Proposed legislation to militarize CAA in event of all-out emergency is far from dead. Budget Bureau has asked CAA to clarify several points and this is now being done.

•

Air parcel post traffic on airlines is setting records in December. During rail strike it was 500 to 1,000% above normal. However, even discounting strike, it will be record month. Bulk, rather than weight, of parcel post presented airlines with some problems.

Kaiser to Build Packets

Kaiser-Frazer Corp. has signed an Air Force contract to build Fairchild C-119 Packets, AF troop-carrying transports, at the Willow Run plant, Detroit. This cancels a previous plan under which Fairchild Aircraft Division, which AF officials admitted had one of the best mobilization plans in the industry, would have built the planes at the Marietta, Ga., reserve plant. It is understood that K-F will also get into B-47 jet bomber production under license to Boeing Airplane Co.

10-Point Production Plan

A spreading of defense contracts throughout industry to broaden the field of military manufacturers, and wider use of negotiated contracts, have been ordered by Defense Secretary George Marshall in a 10-point directive to Air Force, Army and Navy.

The spread of contracts will provide a greater mobilization base and will take up the slack in industries facing cutbacks because of materials shortages. Negotiated contracts, allowed in a national emergency, will speed procurement. Formal advertising will be used only when it does not interfere with such procurement.

Marshall's 10 points:

1. Greatest possible integration of current production contracts with the industrial mobilization program. Over 10,000 plants have mobilization schedules. *(Aircraft and components plants which have industrial mobilization contracts can expect orders to implement them.)*

2. Avoidance of concentrating contracts with a few manufacturers. *(This point does not apply as much to the airframe manufacturers, since new airframe manufacturers are not created overnight. However, some new plane builders—Kaiser-Frazer, for instance—will appear.)*

3. Utilization of existing open plant space to maximum capacity. *(The aircraft industry, including engine and propeller manufacturers, is now using about 6/7 of the open plant space, but it is very loosely utilized.)*

4. Fullest possible use of small businesses. *(Small businesses are already participating to a large degree in aviation manufacturing.)*

5. Use of past records in competitive bidding as guideposts for letting negotiated contracts. *(Consistently low bidders who have turned out acceptable products will get priority in negotiated contracts.)*

6. "Aggressive" encouragement of subcontracting by prime contractors. *(This has already been accomplished to a large extent in the aircraft industry, but it will probably be even further promoted.)*

7. Provision of maximum incentive to manufacturers to reduce production costs. *(Low cost producers will get contract priority.)*

8. Placement of contracts with a view to economies in transportation. *(Prime contractors will try to select subcontractors as near as possible to the major assembly plant to save both time and money.)*

9. Consideration of availability of manpower in a given area. *(Labor situation is almost universally tight in the aircraft industry.)*

10. Reservation of special skills of certain firms for the more difficult production tasks. *(Newcomers to aviation production will probably be assigned items now in production while the top aircraft firms draw the initial production of new equipment assignments.)*

Emergency and Mobilization

Twenty-five weeks after outbreak of war in Korea, the U. S. has declared a national emergency and appointed an all-powerful Director of Defense Mobilization. The result will be a stepped-up defense program and, it is hoped, less confusion in the Washington set-up.

Reaction to appointment of the Director, Charles E. Wilson, president of General Electric Co., was good. Both manufacturers and airlines were waiting to see what kind of government organization will emerge. They hoped for a centralization, to simplify their dealings with official Washington.

Here, specifically, is what President Truman's Dec. 16 executive order provides:

Organization: Established in the executive office of the President the Office of Defense Mobilization, headed by a $22,500-a-year Director, appointed by the President with advice and consent of the Senate.

Powers: Director shall on behalf of the President "direct, control and co-ordinate all mobilization activities of the Executive Branch of the government, including but not limited to production, procurement, manpower, stabilization, and transport, activities." He shall report to the President "and issue such directives . . . on policy and operations to the Federal agencies and departments as may be necessary to carry out the programs developed, the policies established and the decisions made by the Director. It shall be the duty of all such agencies and departments to execute these directives and to make to the Director such progress and other reports as may be required."

Effect: Wilson's powers are about as broad as it's possible to make them; he's the "assistant President." National Security Resources Board is no longer the top policy and planning board.

National Production Authority (now in Commerce Dept.), Economic Stabilization Agency, and other defense set-ups, will be controlled by Wilson. He'll now set the policies. Whether he'll consolidate these agencies under ODM remains to be seen.

Declaration of a national emergency made available to government the following powers enacted in laws since 1947:

Contracts: Purchases and contracts for supplies and services may be negotiated; advertising is not necessary.

Defense Facilities: Secretary of Defense shall not permit property acquired under National Defense Facilities Act of 1950 and permitted by him in accordance with the act to be used by persons or organizations, to be used in any way which will interfere with their use for administration and training of reserve components of the armed forces, other units of the armed forces, or any other use by federal government. Same requirement applies to facilities acquired or improved by any state with funds contributed by Secretary of Defense.

Surplus Airports: Disposition of all surplus airports, facilities and equipment under Surplus Property Act was made with condition that U. S. has right to use, control and possess them during national emergency.

Non-Surplus Property: Leases of non-surplus property made by Secretaries of Air Force, Army or Navy are revokable during national emergency.

War-Risk Insurance: Secretary of Commerce is authorized to provide war-risk insurance to appropriate persons.

Legislation passed prior to 1947, when previous national emergency was terminated, and which are again effective:

Eight-Hour Law: President may suspend provisions of the eight-hour law as to contracts with U. S. subject to provisions for payment of overtime.

Three Airports Affected: Three specific airports are affected: (1) government can assume absolute control, for military purposes, of municipal aviation field on land leased to Tucson, Ariz. (law passed in 1926); (2) government may assume control of airfield near Yuma, Ariz. (1926); Secretary of War may transfer specified land to city of Little Rock, Ark., upon condition that he may require the city to turn over complete control of Little Rock Municipal Airport to U. S. in time of emergency (1936).

More Civil Training for AF

Substantial increase in Civil training of Air Force pilots and technicians is provided for in the second supplemental defense appropriation which has passed the House and Senate. The $17,265,000 now approved for AF training will increase to $37,174,000. Nine more training installations will be opened during fiscal 1951, of which one is for indoctrination training, one technical, and seven flight. Five of the seven flight training bases will be civil operated. Also $8,100,000 is allotted for training 10,400 AF technicians under contracts with civil trade schools.

MANUFACTURERS

Lockheed Sales: The 1950 sales of Lockheed Aircraft Corp. will reach about $170,000,000, highest in company history except for war years and 44% over 1949, according to **Robert E. Gross,** president. Backlog is over $425,000,000, against $230,000,000 a year ago. Backlog includes orders for 70 Constellations. Company now employs 18,500, up 11% from last year, and expects peak of 21,000 by end of 1951.

Olive Beech Elected: **Olive A. Beech,** widow of Walter H. Beech, has been elected president and chief executive officer of Beech Aircraft Corp. She has been a member of the board of directors and secretary-treasurer of the company. Other officers elected last week were **John P. Gaty,** vice president and general manager; **T. A. Wells,** vice president and chief engineer; **Frank E. Hedrick,** vice president and coordinator; **John A. Elliott,** treasurer; **L. Winters,** assistant secretary. Hedrick was also elected a director. Other directors: Mrs. Beech, Gaty, Wells, Hedrick, T. D. Neelands, Dwight S. Wallace.

39% Subcontracted: Over 63% of airframe cost of Air Force planes being built by Boeing Airplane Co. (B-50 bomber, B-47 jet bomber, C-97 Stratofreighter) goes to subcontractors and to parts and materials suppliers. Company is subcontracting 39% of Air Force work, while 16% goes to suppliers of finished parts and over 8% to raw material suppliers. Remaining 37% is used by Boeing for labor, facilities, operating costs, etc. Heaviest subcontracting has been in Wichita Division's B-47 program, largely due to manpower limitations. Major subcontractors: Aeronca, Beech, Bell, Bendix, Cessna, Chance-Vought, Cleveland Pneumatic Tool Co., Coleman Co., Consolidated-Vultee, Douglas, Dixon Mfg. Co., Foote Bros. Gear and Machine Co., Goodyear Aircraft Corp., Iron Fireman Mfg. Co., Rohr Aircraft, Ryan Aeronautical, A. O. Smith Co., Swallow Airplane Co., Texas Engineering and Mfg. Co., United Aircraft Corp., Vard Inc.

New Aerojet Plant: Negotiations are almost complete for acquisition of 7,200 acres 16 miles east of Sacramento, Calif., for a new Aerojet Engineering Corp. plant estimated to cost $6,000,000. Plans call for Aerojet to transfer production of solid propellants to the new plant, and devote present Azusa, Calif., plant to liquids.

People: **Donald M. McGrath,** former assistant director of sales and service for Eclipse-Pioneer Division of Bendix Aviation Corp., has been named general manager of company's Red Bank, N. J., division . . . **John D. Kline,** engineering liaison representative between Allison Division of General Motors Corp. and Air Materiel Command's Power Plant Laboratory, has been appointed manager of company's Los Angeles zone.

(Continued opposite page 54)

3. You held the heading in 2 until the course bar started to move toward center, then turned to the left at a rate which kept the heading arrow aligned under the course bar . . . indicator now shows you are on your course!
2. Arrow now shows that you are approaching your course at 45° . . . bar has now moved showing that you are nearing your course . . . decrease your rate of turn.
1. Bar indicates your desired course . . . it says your course is to the right. The arrow indicates the way you are headed . . . it says you are flying away from your course . . . turn right!
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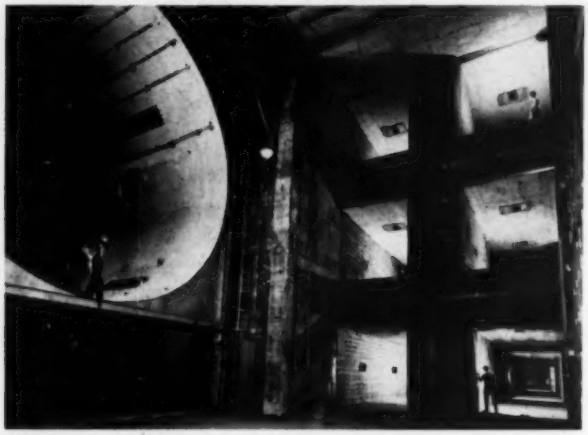
News In Pictures

Airlift 4-0-4—Two military versions of the Martin 4-0-4 are now being offered to the military services. Alternate choice of powerplants represent major difference in two models. One is powered by the Pratt & Whitney R-2800 CB-17 engine rated at 2,500 horsepower and the other by Allison 2,750-horsepower turboprop engine. Features include wing-tip fuel tanks for additional range, 2 ft. 5 in. additional wing span on the turboprop version and large loading doors under the tail featuring a built-in loading ramp for small vehicles.



Acoustical House—These six parallel muffling chambers are part of an elaborate "acoustical house" designed by the National Advisory Committee for Aeronautics to deaden low-frequency wind tunnel noises, which can not be muffled by ordinary means. The chambers house resonator-type attenuators which kill sound in specific ranges.

Decorative Eyeful—Green, red and yellow paint brush, liberally applied, gives Ethiopian Airlines' new Convair Liners a gay and distinctive appearance. They're first Convairs to go to Africa and they're also the first equipped to use JATO for takeoff.

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afford to destroy our manpower and resources except in the final necessity of protecting our own homeland. The answer must be found in myriad new technological weapons and air power. Or in a peaceful settlement which now seems so remote as to be virtually impossible.

Everyone is talking about temporary restrictions, temporary sacrifices, and what they will do "after it's over." In our humble opinion the "after it's over" is a long way off, possibly the better part of a generation. And as we go deeper and deeper in regulations, controls, rationing, and all other activities requiring state control, the Marxists know full well that they have succeeded in their first major objective—to destroy private capitalism. The U. S., as well as other countries, has moved into a state control which is never likely to be fully relaxed. But it is a state control far more beneficial to the individual than the ruthless kind of dictatorial control which the Marxists discovered they needed to impose their own ideologies on their own people.

Excellent Choice

THE COLLIER Trophy award committee made an exceptionally good choice this year. William B. Lear is a most deserving recipient and, if anything, has been overlooked too long. Specifically the award was given for his development and production of the Lear F-5 Automatic Pilot and Automatic Approach Control Coupler System, but this is only one of Bill Lear's many achievements in a lifetime of technical brilliance. It is men like Lear who have helped to make U. S. aviation great—and who will be the keys in the world struggle with Russia. It is fine for a great magazine like *Collier's* to give recognition to those whose minds have contributed such truly remarkable developments to our present civilization.

Revisions Ahead

FULL IMPACT of the President's declaration of national emergency is yet to hit the country, but it will have a deep effect on all of aviation as well as other industries.

Airline sales programs, for example, may have to be revised. The extent of tourist travel for the future is very much in doubt, although there are no signs of any immediate stoppage or of the establishment of travel priorities.

At the start of World War II the airlines were curtailed sharply. This will not happen again under present plans. The airlines are at last recognized as essential for mobilization as well as for peace. Only in a dire emergency will the airlines be stripped of passenger-carrying equipment. The military services want the airlines to continue in full operation.

The year 1950 has been an excellent one for all but a couple of airlines. But rising operating costs will necessitate the elimination of some fare frills such as the family plan and other sales-stimulating efforts to increase air travel. At this writing there is even talk of an increase in the basic fare structure, although we feel that this is poorly timed and should be stalled off as long as possible. Elimination of various forms of reduced fares, even round-trip discounts, might bring in sufficient additional revenue to stave off a basic fare increase.

There are many who will look at the improved profit figures for this year and think up new ways of soaking the airlines. The lower echelons of the CAB, for example, are apt to take the position that a million dollar profit is exhorbitant without recognizing that a single DC-6 or a Constellation costs that much. The profits are rosy, but they have been only too rare in airline history, and under any standard they aren't too large.

Mobilization finds the airlines in good shape.

Project for 1951

THE PRESIDENT of a large nationally known industrial corporation wrote us the other day about the baggage problem at airports. What this executive had to say is important because he is a long-time friend of aviation. He had just returned from an extensive business trip around the country and had flown on five leading airlines.

"Based on this experience I can frankly say that the biggest current drawback to commercial air transportation is slowness and inefficiency in handling baggage," he wrote. "All along the route I heard many adverse comments about this from other air travelers. I would make a good guess that from the time the plane stopped until I was actually in possession of my baggage on this trip the average elapsed time was about 25 minutes. The best service I got was about 15 minutes and the worst about 40 minutes. As far as I can see, all the airlines on which I traveled were about in the same category in this regard."

Ever since the chaotic year of 1946 the airlines have made steady improvement in reservations, passenger-handling, ticketing, connecting space, and on-time dependability. In some respects the progress has been better than expected. But we agree with our corrspondent that the baggage problem is just about as bad as ever, and since more and more planes are large-capacity, the problem is actually worse from the standpoint of the individual passenger.

If there was an easy solution to baggage handling it would have been found long ago. But a solution must be found even if it's difficult and we suggest that baggage handling be the 1951 project for the airlines. Since all airlines are in the same category so far as we have observed, we suggest a concerted effort through the Air Transport Association or the Air Traffic Conference. Offer prizes or bonuses for suggestions by employes, or establish a centralized committee. Whatever the means, the end result is most necessary to reach. It is the one major irritating problem remaining to get major attention.

WAYNE W. PARRISH

BOEDY'S ALBUM

W. J. "Bill" Weddell
Weddell & Smith
Detroit, Michigan
May 13, 1939

D. G. "Del" Hendrickson (QB)
Marquette Airlines, Inc.
at Detroit, Michigan
May 13, 1939

Peg O'Grady
American Airlines
Detroit-Newark
May 13, 1939

A. E. "Prince" Hamer
American Airlines
Detroit-Newark
May 13, 1939

Preston M. Mood
American Airlines
Detroit-Newark
May 13, 1939

J. C. "Joe" Clifton
United States Navy
at Wright, Paterson, N. J.
May 15, 1939

C. O. "Chuck" Rogers
United States Navy
at Wright, Paterson, N. J.
May 15, 1939

W. J. "Bill" Carry
The BG Corporation
New York, N. Y.
May 15, 1939

Fred H. Schultz
USN Inspection
at New York City
May 15, 1939

George A. Schulte
BG Spark Plugs
New York City, N. Y.
May 15, 1939

A. L. "Al" Patterson (QB)
China Airmotive Corp.
at New York City
May 15, 1939

F. W. "Del" Dalrymple (QB)
at Murray Hill QB Meet
New York, N. Y.
May 15, 1939

Eric W. Wood (QB)
Cairns Corporation
at New York City
May 15, 1939

A. J. "Milt" Hamon (QB)
Shell Oil Company
at New York City
May 15, 1939

E. P. "Pete" Perkins (QB)
Erickson Perkins & Co.
at New York QB Meeting
May 15, 1939

Ralph C. "Kiddy" Barrows (QB)
Fairchild Aerial Surveys
at Murray Hill Hotel Meeting
May 15, 1939

BOEDY'S ALBUM

J. A. "Jack" McMillan (QB)
at QB Meeting, New York
Hotel Murray Hill
May 15, 1939

O. P. "Ted" Hebert (QB)
Safair Flying School
at Murray Hill Hotel
May 15, 1939

John W. "Jud" Judson (QB)
Lurelle Guild Associates
New York City
May 15, 1939

Murray "Bob" Hawley (QB)
United Air Lines
at QB Meeting, N. Y. C.
May 15, 1939

MacKay D. Holmes (QB)
Parke, Davis & Co.
New York City, N. Y.
May 15, 1939

Sloan "Cub" Taylor (QB)
New York Daily News
New York City, N. Y.
May 15, 1939

Logan C. "Duke" Ramsey (QB)
United States Navy
at New York QB Meeting
Murray Hill Hotel, May 15, 1939

J. Emott Caldwell
Popular Aviation
at New York City
May 15, 1939

Hazel F. Mitchell
Wright Aero Corp.
Paterson, N. J.
May 16, 1939

Edwin J. "Ed" Ahrens (QB)
Civil Aero Authority
Newark-Baltimore
May 18, 1939

J. S. "Jack" Lambie
Eastern Air Lines
Newark-Baltimore
May 18, 1939

Parker Cole
Eastern Air Lines
at Baltimore, Md.
May 18, 1939

Wilbur P. Marston
U. S. Army Air Corps
Baltimore, Maryland
May 18, 1939

W. C. "Turk" Ellis
Maryland Nat'l Guard
Baltimore, Maryland
May 18, 1939

E. G. "Eddie" Meckel
Maryland Nat'l Guard
Baltimore, Maryland
May 18, 1939

R. T. "Slim" Bankard
Maryland Nat'l Guard
Baltimore, Maryland
May 18, 1939

BREAKING HER OWN WORLD RECORDS

The Air Force's Convair-built XC-99 transport, with no more world cargo marks to break except her own, continues to set new records that no other aircraft can approach.

The conflict in Korea has proved conclusively that battles and even a major campaign can be lost if critical materials are not available immediately after an aggressor strikes.

Commitments by the United Nations to stop aggression throughout the world emphasize the desperate need for high-capacity, long-range air-cargo-carriers that can transport vast amounts of materiel where and when they are needed.

Only the C-99 can speed more than 100,000 pounds of weapons or supplies anywhere in the world in time to meet the initial thrust of an aggressor.

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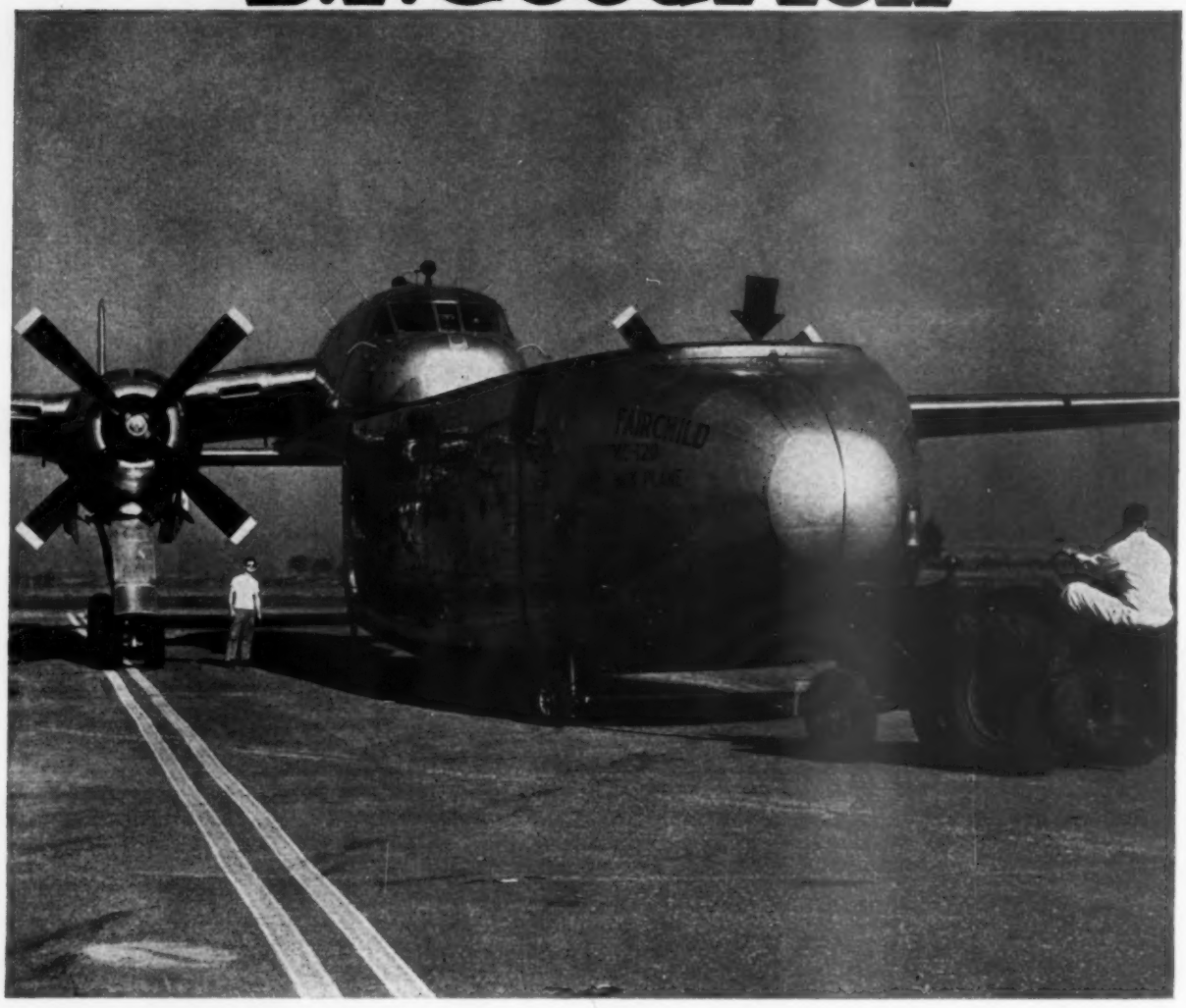
SAN DIEGO, CALIFORNIA FORT WORTH, TEXAS

B.F.Goodrich



100-foot rubber band seals pack and plane together

DESIGNS of the new Fairchild Packplane called for a seal to close up the two-inch space between the cargo pack and fuselage against wind and rain.

Trouble was, ordinary inflated seals or compression-type seals wouldn't work. They would put up to a 3½-ton separating force on the plane, which is much too much. What's more, the seal would get damaged in positioning the pack for attachment.

B. F. Goodrich engineers were given the job of developing a 100-foot band of rubber that would provide the weather seal between pack and plane—and at the same time answer those problems.

They started with an inflatable tube, made of rubberized fabric with a soft rubber base. To the top of this tube they cured a special rubber strip, forming a lip-type seal which was attached to the pack.

In flight and ground tests, the new B. F. Goodrich inflatable seal proved the perfect answer. Its deflated height, only ⅜", allows plenty of clearance during attachment of the pack. It inflates to 8½ times its deflated height, providing an airtight seal. Because contact with the plane is made by the thin rubber lip instead of the tube itself, separating force is practically eliminated.

If you have a sealing problem—or any other problem that B. F. Goodrich engineering and research might solve—remember that BFG is *first* with the latest developments. *The B. F. Goodrich Co., Aeronautical Division, Akron, Ohio.*

B.F.Goodrich
FIRST IN RUBBER

ESTABLISHED JUNE 1, 1937 VOLUME 14 NUMBER 23

American Aviation

Flight tests begin on . . .

FIRST U. S. TURBINE TRANSPORT

By FRED S. HUNTER

THE CONVAIR Turbo-Liner was to have made its first test flight last week, only 10 months after active work on the project was initiated. This is the first in what may be a long line of Convair Turbo-Liners powered by the Allison T-38 engine, a 2,750-horsepower turboprop engine.

Its flight has been made possible by the Allison Division of General Motors Corp. which early in February purchased a Convair-Liner from Consolidated Vultee Aircraft Corp. for the sole purpose of accumulating operating data "on the reliability and dependability of turbine-powered transport aircraft."

The flight of the Turbo-Liner is particularly important because it is the first turbine-powered transport built and flown as a U. S. project and because there are nearly 200 sisterships flying in airline service which would ultimately be converted to the new type of power.

It is significant that, while the industry at large and the government have been attempting to provide a workable government-financed system for prototype testing of turbine-powered aircraft, Allison has purchased a modern transport, contracted with Convair to install its own advanced turboprop engine and scheduled extensive flight evaluation all on its own.

As soon as initial flight tests are completed at San Diego the plane will go to Edwards AFB (Muroc) for three months' flight testing by Allison, then to Indianapolis, Allison's headquarters. Certification of the Turbo-Liner by CAA is scheduled soon after the engines get CAA certification. This will be followed by a tour of the country to show the job off to the airlines and the military.

One Word or Two?

Consolidated Vultee spells it **"Turboliner,"** one word, and that is the way the name was registered in the patent office.

Allison calls it the **"Turbo-Liner,"** two words hyphenated, and that is the way it is lettered on the fuselage of the Convair the General Motors division purchased for a test vehicle—and subsequent showcase—for its T-38 turboprop powerplant.

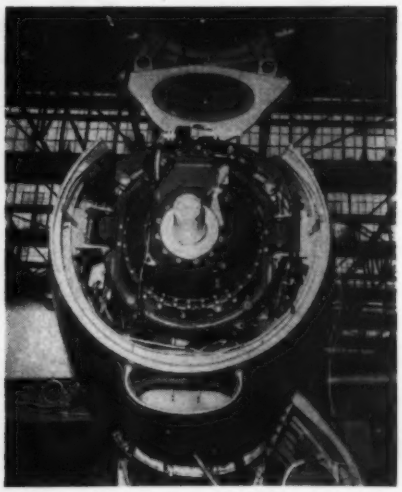
Whatever may be the outcome of this literary difference, Consolidated and Allison are one in the opinion that they have an airplane of historical significance in American's first commercial turboprop transport. They also figure they are making a substantial contribution in this turbine transport competition with Great Britain, particularly since they are using their own money.

Allison is quick to point out that the full results of these flight tests will be available to any transport manufacturer. This means that, while Convair and the operators of Convair-Liners will undoubtedly reap the greatest benefits in directly applicable engineering data, Douglas, Martin, Lockheed and others will also share the fruits of the test program. In this light it is advantageous that an engine manufacturer, rather than an aircraft manufacturer, has taken the initiative.

Current data indicates that the Turbo-Liner will cruise 310 mph at 16,000 feet altitude with 75% rated power. Top speed at this altitude will be 350 mph. Increased power of the Allison 501-A2, commercial designation of the T-38, will permit a gross takeoff weight of 41,790 pounds. "Clean," or non-CAR, takeoff is 2,100 feet over a 50-foot obstacle compared to 2,400 feet with the piston-powered Convair. Sea-level rate of climb is 1,940 feet per minute.

Cruise at 35,000

Ultimately Turbo-Liners will be pressurized by new AiResearch equipment to permit cruising altitudes of 35,000 feet. This contrasts with the popular tendency to bleed air from the engine compressors for cabin pressurization. Meanwhile, during flight tests, standard equipment



ENGINE EXHAUST is funneled out this opening along with the exhaust of the two combustion heaters mounted on either side of the tailpipe in the nacelle (left). The ducting emphasizes the manner in which the exhaust system is laid over the wing proper. Two of the three engine mounting bolts can be seen in this photo (right) of the engine and nacelle. These are at each side of the reduction gear box. The third mounting point is on the underside of the compressor. Ducts on either side of the upper scoop are apparently for hot air deicing of the inlet.

will be used to maintain 26,000-foot cabin altitude at 35,000 feet.

The prototype airplane is a cargo version with a hydraulically operated cargo door 5 by 9 feet in size. Eight airline-type passenger seats have been installed in two rows directly in back of the forward cabin bulkhead for use by observers. The ship is loaded with test instrumentation including photo recorders.

The principal attraction offered by the Turbo-Liner is its pair of Allison 501-2A engines. Military demands delayed delivery of the T-38's to the Convair plant by several months.

Allison has actually gotten up to 3,000 horsepower with the Model 501-A2 and the long-range goal is for a rating of 3,750 horsepower. All of Convair's design considerations are for higher ratings the engine is expected to attain in the next few years.

Large Nacelles

The size and overhang of the nacelles is the first thing that strikes the eye in looking at the Turbo-Liner (see cut). The spinner on the right propeller is almost in line with the American Airlines-style loading ramp which is well forward in the fuselage. Nacelle size is adequate to incorporate the AiResearch compressor and starter which will be used in the right-hand nacelle after the first few flights.

The nacelle design also reflects the desire to have the turbine and tailpipe over the wheel well and wing structure so that the centerline of the propeller will be below the turbine axis and thus maintain substantially the same thrust line as the Convairs now flying.

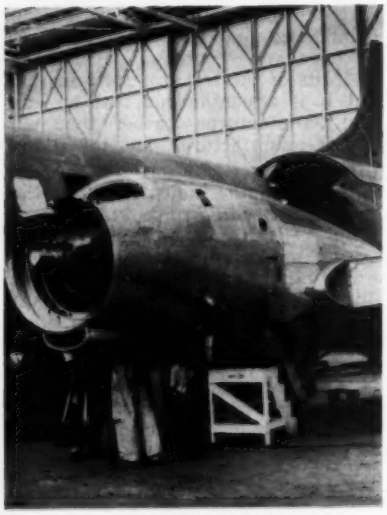
Each nacelle also contains two combustion heaters, one on either side, for use in providing heat for the cabin and thermal anti-icing for wings and tail. Heater exhaust is aspirated into the tailpipe at the turbine exit (see photo).

In addition to the inlet scoop for engine air atop the nacelle there is another on the underside of the oil cooler. Only about 30% of oil-cooling requirements are for the turbine itself, the major portion is required to handle demands of gear-box lubrication. The oil cooler inlet scoop also supplies air to the combustion heaters.

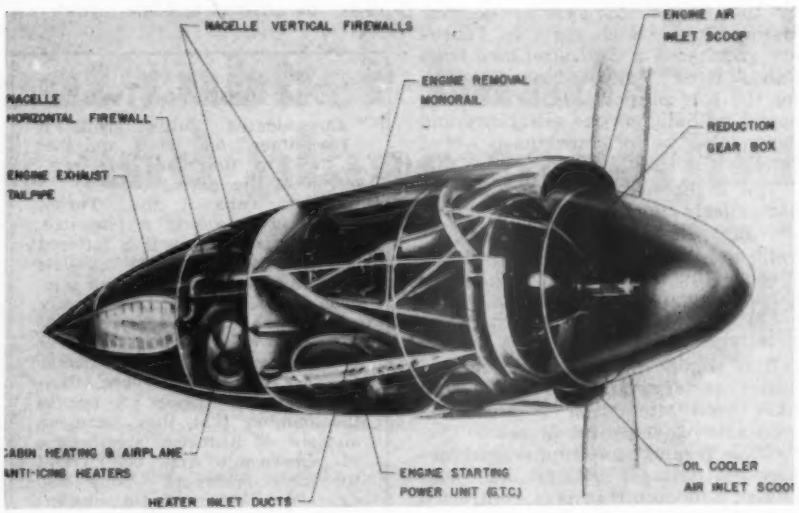
Three-Point Mounting

Engines use three mounting points, two on the reduction-gear box and one on the compressor housing. Turbine components are mounted on the underside of the compressor section and accessories on the rear face of the gearbox.

The Allison Model 501-A2 has a dry weight of 1,225 pounds, or 0.448 pounds per horsepower. Lower en-



RELATIVE SIZE of the nacelle is shown here while the Turbo-Liner was still in the shops. As can be seen in the artist's sketch of the nacelle, this size provides for housing the oil cooler, auxiliary power unit for starting, heaters for cabin heating and thermal deicing, as well as the landing gear.



INSIDE STORY of the powerplant installation in the nacelle of the Convair Turbo-Liner is shown in this artist's sketch. Note how the engine is mounted at the top of the nacelle so that reduction gearing serves to maintain the same thrust line as the original engine installation.

COCKPIT CONTROLS for the Allison turboprop are prominent in this photo showing R. C. Loomis (left), Convair's chief of inspection and flight, as he discusses the development with E. B. Newill, vice president of General Motors Corp. and general manager of the Allison Division.

gine weight brings about a weight saving of 1,400 pounds which can be translated into greater payload. Incidentally, Allison has stated that on a regular production schedule the engine can be produced for the same cost per pound as any other engine of comparable power. A regular production schedule implies military purchases but the T-38 is basically one-half of the T-40, in which the Navy is interested, so production economies could result for both engines.

Convair also has high hopes for an Air Force order for a turboprop version of the T-29 navigational trainer, a modified Convair-Liner now in production.

Fuel Consumption Tests

One of the principal sets of data to be compiled will relate to fuel consumption of the engines and resultant aircraft range. At first Allison will use grade 100/130 gasoline in the engine but later on kerosene, ANF-58 and other types of fuel will be tried.

The Turboliner's propellers are four-bladed Aeroproducts, 13 feet 6 inches in diameter. Gearing is 12.5 to 1, giving the propeller a speed of 1,146 revolutions per minute for a turbine speed of 14,300 rpm. Aeroproducts has also developed the electronic powerplant control equipment. This is a particularly tricky feature of turboprop power, so the prototype has an alternate means (see photo) of separately controlling the propellers and turbines in addition to the automatic features.

How $10.3 Billion in Procurement Funds Would Be Spent

THE MONEY available for military aircraft procurement in the fiscal year 1951 will reach $10,337,242,000 if the recently submitted second supplemental appropriation request is approved by Congress. The bill has already passed the House and is expected to go through the Senate without a hitch.

The second supplemental asks another $2,271,060,000 for Air Force plane procurement, bringing to $6,603,440,000 the amount the Air Force will be able to spend for planes in fiscal 1951. The second supplemental lists an item of $156,000,000 for Navy aircraft procurement, but Navy officers explained that it will not actually go for plane purchases, but for additional tooling and new production facilities. Assuming approval of the new supplemental, the Navy will spend $2,542,922,000 for planes this year.

Military Aircraft Appropriations

Here is a round-up of 1951 military aircraft procurement appropriations, passed and pending:

	Basic	1st Supplemental	Proposed 2nd Supplemental	Total
	(000)	(000)	(000)	(000)
Air Force	1,711,440	2,777,300	2,114,700	6,603,440
Navy	790,293	1,596,269	156,360*	2,542,922
Army	2,000	40,376	.....	42,376
MDAP	224,210	924,293	.....	1,148,504
Total	**2,727,943**	**5,338,238**	**2,271,060**	**10,337,242**

*Tooling and production facilities.

Air Force Breakdown

The Air Force's appropriations for the year are broken down as follows:

	Basic & 1st Supplemental Appropriations	Proposed 2nd Supplemental Appropriation	Total
	(000)	(000)	(000)
Aircraft & Related Procurement	$4,488,740	$2,114,700	$ 6,603,440
(Cash)	(2,952,300)	(2,114,700)	(5,067,000)
(Contract authority)	(1,536,440)	(.....)	(1,536,440)
Major Procurement other than Aircraft	687,107	583,900	1,270,007
Acquisition & construction of Real Property	366,984	807,000	1,173,984
Maintenance & Operations	1,879,618	704,600	2,584,218
Military Personnel Req.	1,545,800	264,700	1,810,500
Research & Development	205,072	115,000	320,072
Reserve Personnel Req.	39,817	1	39,818
Air National Guard	103,935	.....	103,935
Contingencies	26,714	13,110	39,824
Total, New Obligational Authority	**$9,342,787**	**$4,603,011**	**$13,945,798**

Armed Services Funds

The following is a breakdown of all the money the services will spend in fiscal 1951:

	Basic & 1st Supplemental Appropriations	Proposed 2nd Supplemental Appropriation	Total
	(000)	(000)	(000)
Army	$ 7,250,390	$ 9,210,865	$16,461,255
Navy	7,769,957	2,979,371	10,749,328
Air Force	9,342,787	4,603,011	13,945,798
Sec. of Defense	633,300	51,000	684,300
Total	**$24,996,434**	**$16,844,247**	**$41,840,681**

Behind the Scenes

Hamilton Standard is known throughout the world as one of the foremost designers and builders of airplane propellers. Not so well known, perhaps, is the rapid progress Hamilton Standard has made in a new field — air conditioning for turbine-powered aircraft.

Yet, starting from scratch only two short years ago, Hamilton Standard has come up with what we honestly believe is the best cockpit air-conditioning system now available anywhere for high-speed aircraft.

This unit is efficient, compact and light in weight. It is comparatively low priced. Most important of all, it has overcome to a marked degree the problem of limited service life that has plagued all such systems to date.

These results were not easily attained. Small as the air conditioning unit is, and basically simple as it appears in operation, the skills required to design, develop and produce it are equal to those demanded in any of the highly technical branches of the aircraft industry.

In solving the problems of aerodynamics, thermodynamics, vibration, balance and metallurgy involved in this new product, we were able to draw on 31 years of related engineering work in the propeller field. Beyond this, our extensive laboratory and test facilities were almost ideally suited for this work. From a production standpoint, the new product required utilization of the same basic machine tools and manufacturing skills already available at Hamilton Standard.

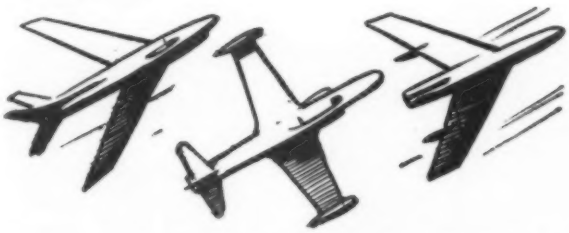
This background of engineering skills, laboratory facilities and manufacturing techniques represents an investment of millions of man hours and millions of dollars. It has played a vital part in helping us bring through successfully this new development in record time.

at Hamilton Standard

WHAT DOES THIS AIR CONDITIONING UNIT DO?

Expressed in the simplest terms possible, this air conditioning unit takes in 240 cubic feet of air every minute at a temperature of 600°F. and delivers it to the cockpit at just below the freezing point. If that sounds easy, it is comparable to the work done by a refrigerator that could turn out *13 tons* of ice cubes a day! Yet the entire system weighs only 20 pounds. The heart of the system is a tiny axial-flow turbine wheel only 3 inches in diameter, turning at 60,000 RPM and driving a radial fan on the same shaft. Hamilton Standard engineers have found that this combination of axial flow turbine and radial fan is highly efficient, relatively simple to manufacture, and lower in cost.

HOW MANY NEW TYPES OF AIRCRAFT WILL USE IT?

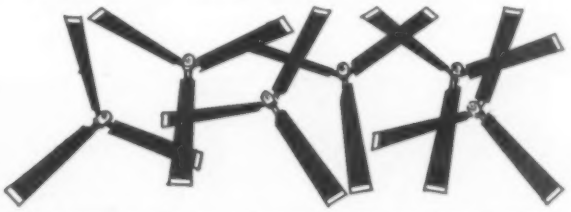


Probably the best measure of the outstanding performance of this Hamilton Standard air conditioning system is its prompt acceptance by the aircraft industry. Production orders have already been received for its installation in three of the nation's top fighters — the Air Force North American F-86D and Lockheed F-94 and the Navy Vought F7U "Cutlass".

WHY WILL IT HAVE LONGER SERVICE LIFE?

It is literally true that until Hamilton Standard entered this field, cockpit air conditioning systems had to be checked after every flight, and their service life was limited. This was primarily due to the difficulty of properly lubricating the turbine shaft running at extremely high speeds and often under heavy loads caused by vibration and unbalance. Hamilton Standard went straight to the heart of the problem by developing an entirely new system of shaft lubrication — so superior that test units have repeatedly run more than 1,000 hours without maintenance of any kind. Skillful manufacturing techniques to minimize vibration and unbalance have still further improved these results.

WILL OUR PROPELLER PRODUCTION BE AFFECTED BY THIS NEW ACTIVITY?



The Answer is No. In selecting the air conditioning system as its first venture into the aircraft accessory field, Hamilton Standard was guided by the policy that the new product must be well suited to its engineering and production talents and equipment, and must not interfere in any way with the development and production of propellers. Actually, Hamilton Standard is gearing up toward its biggest propeller production program since World War II days, and at the same time is increasing its engineering efforts in the propeller field.

HAMILTON STANDARD

EAST HARTFORD, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

HAMILTON STANDARD
EAST HARTFORD CONNECTICUT
UNITED AIRCRAFT CORPORATION

Night Work—Floodlights illuminate night operations at Consolidated Vultee Aircraft Corp.'s San Diego plant, where the company is adding the jet engine pods (four additional engines in two pods) to B-36 bombers.

Four Groups to Join NAC

Invitations to become affiliate members of the National Air Council and to be represented on its board of governors have been accepted by the Aeronautical Training Society, the Air Freight Association, the Aviation Distributors and Manufacturers Association and the University Aviation Association. The Air Transport Association and the National Aeronautic Association had affiliated previously.

Individuals elected to the board of governors of the Council to represent their groups are: William J. Graham, president ATS; Glenn L. Rucker, president, UAA; Earl F. Slick, president, AFA; and G. B. Van Dusen, president, ADMA. Also added to the board of governors were Carleton Putnam, chairman of the board of Chicago and Southern Air Lines, and H. R. Boyer, director of production engineering, General Motors Corporation. J. Carlton Ward, Jr., was named a member of the board of managers.

Southern Flight Changes Name

Southern Flight, regional aviation monthly published at Dallas, Texas, will be known as *Flight* magazine, effective with the January, 1951, issue. George E. Haddaway, editor, indicated the name change was in line with a new editorial emphasis on increased national coverage. No increase in subscription or space rates is anticipated, he said.

PEOPLE IN THE NEWS

Fred B. Lee, deputy Civil Aeronautics Administrator, has been appointed to the Committee on Navigation of the Research and Development Board, succeeding **D. W. Rentzel**, CAB chairman. **David D. Thomas**, program planning officer with CAA, has been named Lee's deputy on the committee.

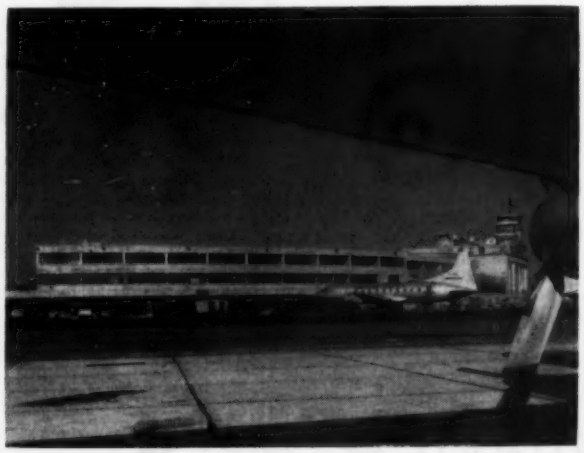
Chester D. Seftenberg, vice president of the First and American National Bank of Duluth, has been named deputy for contract financing to Assistant Secretary of the Air Force **Eugene M. Zuckert.**

Ted E. Enter has been appointed as transport advisor in the Office of the Assistant for Evaluation, Deputy Chief of Staff/Development, USAF. He had been a special assistant to the general manager of the Curtiss-Wright Airplane Division and prior to that was a lieutenant colonel on active duty with the Military Air Transport Service.

Dr. Theodore von Karman, chairman of the Scientific Advisory Board to the Chief of Staff of the Air Force, was awarded the Kelvin Gold Medal, given every third year by engineering societies of the United Kingdom for outstanding contributions to engineering science.

Jacqueline Cochran, head of the WASPS during World War II, has been named chairman of a special board of civilian women consultants to Air Force Chief of Staff **Gen. Hoyt S. Vandenberg** to study problems involving women in the Air Force.

Dr. Herbert A. Wilkinson, chief of the Travel Branch of the Office of International Trade, U. S. Department of Commerce, was elected president of the International Union of Official Travel Organizations at its annual meeting in Dublin.



Terminal Wing—New extension to the terminal building at Washington National Airport, as seen from the field side (left). Wing, which has cost in excess of $1,500,000, will not be formally opened until early February but already is open to partial occupancy. It will house airline operations offices on the upper floors and the field post office and a number of shops on the first floor, including a tie bar, a candy shop and a drug store (right). New wing will give Washington National one of the finest and most complete airport shopping centers in the world.

Aviation Calendar

Jan. 2-7—Miami Aviation Week, Miami, Fla.

Jan. 6-7—Annual Miami Air Show, Opa Locka Airport, Miami, Fla.

Jan. 8-10—8th annual Miami-Havana air cruise.

Jan. 8-12—Society of Automotive Engineers annual meeting and engineering display, Hotel Book-Cadillac, Detroit, Mich.

Jan. 9-26—Third annual Institute of Industrial Transportation and Traffic Management, American University, Washington, D. C.

Jan. 11—Aviation Writers Association dinner, Hotel Statler, Washington, D. C.

Jan. 19—Chamber of Commerce of the U. S. regional transportation conference, Oklahoma City, Okla.

Jan. 22-26—American Institute of Electrical Engineers winter general meeting, Hotel Statler, New York, N. Y.

Jan. 29-Feb. 1—Institute of the Aeronautical Sciences 19th annual meeting, Hotel Astor, New York, N. Y

Feb. 14-16—National Aviation Education Council meeting, Atlantic City, N. J.

Feb. 14-28—Orlando Annual Aviation Fiesta, Municipal Airport, Orlando, Fla.

Feb. 23—Air Transport Command Officer-Stag Reunion, Waldorf Astoria Hotel, New York, N. Y.

March 12-13—Third annual short course on uses of aerial equipment in agriculture, Purdue University, West Lafayette, Ind.

March 16—Institute of the Aeronautical Sciences sixth annual flight propulsion meeting, Hotel Carter, Cleveland, O.

April 16-18—Society of Automotive Engineers aeronautic meeting and aircraft engineering display, Hotel Statler, New York, N. Y.

April 19-21—Airport Operators Council annual meeting, Hotel Peabody, Memphis Tenn.

April 23-26—American Association of Airport Executives annual meeting, Minneapolis, Minn.

April 24-26—Air Transport Association annual engineering and maintenance conference, Drake Hotel, Chicago, Ill.

May 12-13—Airlines Medical Directors Association 8th annual meeting, Hotel Shirley Savoy, Denver, Colo.

May 13-14—Airline Medical Examiners Association 4th annual meeting, Hotel Shirley Savoy, Denver, Colo.

May 14-16—Aero Medical Association 22nd annual meeting, Hotel Shirley Savoy, Denver, Colo.

May 23-24—American Society for Quality Control fifth annual convention, Hotel Cleveland, Cleveland, O.

May 24-25—Society of the Plastics Industry annual national meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

International

Jan. 2—ICAO Legal Committee meeting, Mexico City.

Feb. 5-6—IATA Medical Committee meeting, Cairo, Egypt.

Feb. 13—ICAO Airworthiness Division meeting, Montreal.

Feb. 20—ICAO Operations Division meeting, Montreal.

April 3—ICAO Communications Division meeting, Montreal.

March—World Meteorological Organization Congress, Paris.

6 of 17
NEW
AMPHENOL
RF CONNECTORS
Illustrated here are 6 of the 17 new Amphenol RF Connectors which are featured in the current issue of *AMPHENOL ENGINEERING NEWS.
Among the 17 new connectors in the "UHF" series are 2 cable-to-connector fittings and one right angle adaptor, which has a lower V.S.W.R. than previously available, also a type "HN" angle plug approximately 40% lighter than the usual adaptor-plug combination. Of particular interest are five new connectors; Teflon insulated for lowest possible dielectric losses and satisfactory operation up to temperatures as high as 500° F. Also added to the line are 4 new pressurized panel receptacles and new Wright Field modified type "N" plugs, jacks, panel jacks and bulkhead panel jacks.
Don't miss the Volume 3, No. 10 issue of AMPHENOL ENGINEERING NEWS for complete descriptions and data on these new Amphenol RF Connectors.
* Amphenol Engineering News brings you in this issue complete information on these 17 new RF Connectors, providing specifications and dimensional data preliminary to cataloging. Request this issue of Amphenol Engineering News.
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AMERICAN PHENOLIC CORPORATION
1830 SO. 54TH AVENUE • CHICAGO 50, ILLINOIS

"UMBRELLAS"
...FOR A RAINY DAY!

"Umbrellas" represent one of the first lines of a complete national defense system!

Above these hundreds of silken parachutes fly Fairchild planes...the best equipped "to-do-the-job" aircraft in the skies.

Fairchild leadership in the development of tactical airplanes is now playing a vital part in the vast production mobilization program. Like the airborne trooper, the C-82 Packet, the C-119 Improved Cargo and Troop Transport and the C-120 Detachable Fuselage Transport are parts of the United States Armed Forces Team.

Only this type of coordination between air and ground units could have given the word "Airlift" to our vocabulary. Whether it is generators for the lights of Berlin, trucks, guns or highly trained paratroopers for Korea—Fairchild Airplanes are ready, willing and able to deliver the goods...no matter what sort of weather lies ahead.

ENGINE AND AIRPLANE CORPORATION

FAIRCHILD *Aircraft Division*

HAGERSTOWN, MARYLAND

Fairchild-NEPA Div., Oak Ridge, Tenn. • Fairchild Engine, Guided Missiles, Al-Fin and Stratos Divisions, Farmingdale, N.Y.

Between the Lines:

Impact of National Emergency

By James J. Haggerty, Jr.

THE President's declaration of a state of national emergency will undoubtedly set the wheels of production in the aircraft industry turning even faster and provide the impetus the program has needed for some time. Although the military expansion programs were started five months ago, production of aircraft and components has not been accelerated as much as is generally believed.

The main reason has been the slowness with which the Department of Defense was issuing contracts; manufacturers knew that they would be called upon to turn out considerably more than they had been producing before Korea, but the program proceeded slowly because Defense was not making definite commitments fast enough.

The declaration of emergency and the President's call for a five-fold increase in aircraft production will change all that. It is expected that contracts will start to roll out of the Pentagon immediately at the rate of about $3,000,000,000 a month for the remainder of the fiscal year.

Another effect of the emergency declaration will undoubtedly be the opening of some of the reserve airframe and engine plants and the implementation of mobilization contracts to a certain extent. These contracts had been previously let under the industrial planning program; they assigned a manufacturer an item to build in case of emergency, had him set up production plans and assigned him a plant to be opened in case of the emergency.

Presumably, all he has to do now is move into his new plant and start turning out his defense product. Actually, it isn't as simple as that, for the industrial planning program has been sketchy. But at any rate, we can look for Department of Defense to order a number of these mobilization plans to proceed.

Non-Aviation Firms Coming Back

We can look for more and more of the non-aviation companies to get back into the production picture. One, Ford Motor Co., is already at work preparing for production of Pratt & Whitney Wasp Major engines. Another, Kaiser-Frazer Corp., will soon go into the airframe production business at the Willow Run plant in Detroit. Kaiser is now dickering with top Air Force officials and will probably end up building either the Boeing B-47 jet bomber or the Fairchild C-119 Packet, two key planes in the Air Force's expansion program. There are reports that negotiations will soon be under way with other large non-aviation companies for production of aircraft and components.

Just how many of the reserve plants the current stage of mobilization will require to be reopened is difficult to say, but it is safe to conjecture that several of the larger ones will be opened. The Department of Defense has 75 airframe, engine and propeller plants in the reserve: 36 wholly-owned or controlled by Defense and another 39 in the industrial reserve. These latter are plants which were sold or leased to private industry with a clause in the contract stating that the government might recapture them in case of an emergency. They will probably be the last to be put into use, and in the present stage of mobilization they might not be needed, except in cases where a plant has specialized facilities not available in any of the wholly-owned reserve plants.

We can look for a great recruiting drive for personnel in the aircraft industry. The emergency gives the President power to extend the 40-hour work week in defense plants and it will undoubtedly be extended. Despite five months of "expansion" production, most aircraft plants are still working one full shift with small "bottleneck" shifts. The emergency will probably bring about a return to the two and a half or three shift work day in the aircraft industry.

Look for Rosie the Riveter

Since skilled labor was practically unobtainable before the declaration of the emergency, it would appear that the aircraft industry will now have to start hiring unskilled labor on a large scale and set up the necessary training programs. And since there is not a large reservoir of even unskilled labor available, we will probably see a return to "Rosie-the-Riveter."

One other item of interest to the aircraft industry is that the President's powers under the national emergency entitle him to suspend requirements for sealed competitive bids on defense contracts. All contracts may be negotiated directly with a selected manufacturer. To just what extent this will be practiced is not immediately determinable.

From the military personnel standpoint, it would appear that large-scale reserve recalls in the Air Force and Naval aviation will be required, particularly in the USAF. The Air Force has been saying that the enlistment rate of about 20,000 men a month, plus recall of reservists in critical categories, will meet its expansion needs. However, the new supplemental appropriation bill before Congress calls for an acceleration of the expansion. Passage of this supplemental appropriation, which seems assured, would call for building the Air Force up to 68 groups by July 1, 1951, and attaining an 84-group strength by the following year. A program of that scope almost certainly cannot be met without a substantial increase in reserve recall plus a higher enlistment rate.

As far as money is concerned, it looks as though a $50,000,000,000 defense budget for the current fiscal year is a cinch. With passage of the currently pending supplemental, the total defense money for the year will go over $41,000,000,000. But already Defense officials are saying that they will need considerably more before the year is out if the President's program of 3,500,000 armed by mid-June men is to be attained—perhaps as much as $5,000,000,000 more. And the current supplemental request makes no provision whatever for rising prices of military equipment, although Defense officials admitted they knew that prices would continue to rise. So it is almost certain that the current supplemental appropriation, the second of the year, will not be the last.

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INDUSTRY PERSONNEL

James L. Lee, a veteran of 14 years with Pratt & Whitney Aircraft Division, has been elected to the board of directors of United Aircraft Export Corp.

J. M. (Monty) Richards has resigned from contract administration of Hughes Aircraft Co. to become sales manager for the Shultz Steel Co. at South Gate, Calif. Before joining Hughes, he had served for several years as technical committee coordinator for the Aircraft Industries Association.

E. M. Owen, formerly chief pilot for Chance Vought and more recently in military relations for Curtiss-Wright, has been made chief of the flight department of Northrop Aircraft following consolidation of all flight operations in a single department. Assisting him will be: **W. P. Thayer**, formerly chief experimental test pilot for Chance Vought; **Max Stanley**, Flying Wing test pilot; and **John G. Fales**, former Lockheed test pilot.

Owen

Harold L. Greenhut, formerly assistant chief engineer of American Helicopter Co., has been appointed project engineer in charge of development of a modification of Rotor-Craft Corp.'s new projected XH-11 tandem helicopter design.

Philip M. Willcox has been elected a vice president of Lockheed Aircraft Service-International. For the past year he had been base manager of the company's aircraft maintenance and overhaul facility at New York International Airport.

John Falkowski has been promoted from supervisor of schedules to assistant purchasing manager for Hamilton Standard Division of United Aircraft Corp.

MILITARY PERSONNEL

Brig. Gen. Thomas H. Chapman has been named chief of maintenance of the Air Force's Air Materiel Command, replacing **Brig. Gen. Thomas B. McDonald**, who was transferred to Olmsted AFB, Middletown, Pa. Chapman was formerly chief of AMC's field procurement office in Los Angeles.

Clayton Fritchey, editor of the New Orleans *Item*, has been appointed director of public information, Department of Defense, to succeed **Osgood Roberts**, deputy director who has been serving as acting director.

PRODUCTION SPOTLIGHT

Commercial Transport Backlog: The backlog of commercial transport aircraft has now reached a dollar value of almost $180,000,000, with an additional estimated $90,000,000 worth of commercial-type aircraft destined for military service on order. Three transport manufacturers are building a total of 208 commercial units, plus an additional 50 for the military.

Douglas Aircraft Co. is the leading manufacturer, both from the standpoint of dollar value and number of units on backlog, with scheduled construction of 115 DC-6 units, including DC-6A cargo versions and DC-6B elongated passenger versions. Douglas has orders for 80 DC-6's from 15 commercial operators, 18 for the Air Force and 11 for the Navy; in addition, the company is building six unassigned planes. Commercial backlog is over $83,000,000, not counting the value of the six unassigned planes; the military DC-6A's add another estimated $40,000,000-plus to the backlog.

Lockheed Aircraft Corp.'s commercial backlog is over $58,000,000, with orders for 46 L-749 and L-1049 Constellations from seven operators. In addition, military orders for 10 Air Force and 11 Navy L-1049's add an estimated $50,000,000 to the backlog.

The Glenn L. Martin Co. has orders for 76 twin-engine 4-0-4 transports from two airlines, with a backlog of $38,000,000. The company has no military transport backlog.

4-0-4 Testing: *The Glenn L. Martin Co. has completed about one-third of the certification tests of the 4-0-4 twin-engine transport. The prototype model has compiled more than 40 hours' flying time. First 4-0-4 deliveries are scheduled for next spring.*

F-84E in Korea: The **Republic F-84E**, the Air Force's top ground support fighter, has made its appearance in Korean combat, and the North American F-86 swept-wing jet is also in the theater. This makes a total of four jet types which have reached the war theater: the F-84, F-86, the **Lockheed F-80**, which bore the brunt of the early fighting, and the **North American B-45** four-jet bomber. Three of the latter type planes have been in Japan for some time, but no word has been released as to whether they have actually flown in combat.

XP5Y-1 to Resume Tests: *Consolidated Vultee Aircraft Corp.'s XP5Y-1 Navy turboprop flying boat is about ready to resume flight testing after lying at dock for several weeks . . . The Douglas C-118 (DC-6) Independence, Air Force Presidential transport, is at Douglas Aircraft Co.'s Santa Monica plant for a routine check . . . The Boeing B-50 "Lucky Lady II" which made the first round the world non-stop flight by means of aerial refueling will be turned over to the Smithsonian Institution after an exhibition tour of the country.*

New McDonnell Hangar: **McDonnell Aircraft Corp.** will build a $1,500,000 flight test hangar at its plant at Lambert-St. Louis Municipal Airport. The company hopes to start work on it in February and complete it by November, 1951. Sverdrup & Parcel, St. Louis engineering firm, will handle the job.

Aeroproducts Contract: *Aeroproducts Division of General Motors Corp. has received a subcontract from Boeing Airplane Co.'s Wichita Division to build actuator gear box assemblies for the Boeing B-47 jet bomber.*

In-Flight Fueling Pump: The Air Force's **Air Materiel Command** has developed a new hydraulically operated refueling pump for in-flight refueling which can do the work of eight ordinary pumps and do it twice as fast. A set of two of the new pumps, designated Type A-1, will replace the 16 pumps now used by tanker aircraft.

Hiller Gets Army Order: *Hiller Helicopters has received a "substantial" production order from the Army for H-23A helicopters. The order brings Hiller's military backlog to more than $3,500,000 and its overall backlog to $4 million. The two-litter H-23A's will be used for evacuation of wounded, transportation of medical personnel and delivery of medical supplies to forward areas.*

—J. J. H.

43 top airline executives

go to American Aviation dinner for Rentzel

Delos W. Rentzel

THE GREATEST gathering of airline executives in history heard Delos W. Rentzel, chairman of the Civil Aeronautics Board, in an off-the-record discussion of industry-government problems at a dinner sponsored by American Aviation Publications at the Carlton Hotel, Washington, D. C., on December 14.

A total of 43 heads of airlines, including 32 presidents and four board chairmen, representing 41 U. S. certificated airlines, responded to American Aviation's invitation to hear the new CAB chairman outline the government's plan for closer cooperation with the airline industry and better understanding of its problems.

The select group of non-airline executives present included two cabinet members, representatives of the Senate and the House, high government, military and manufacturing officials. Attendance was by invitation only.

The 41 scheduled airlines represented included U. S. trunklines, local service carriers, international flag carriers, and two airlines each from Alaska and Hawaii.

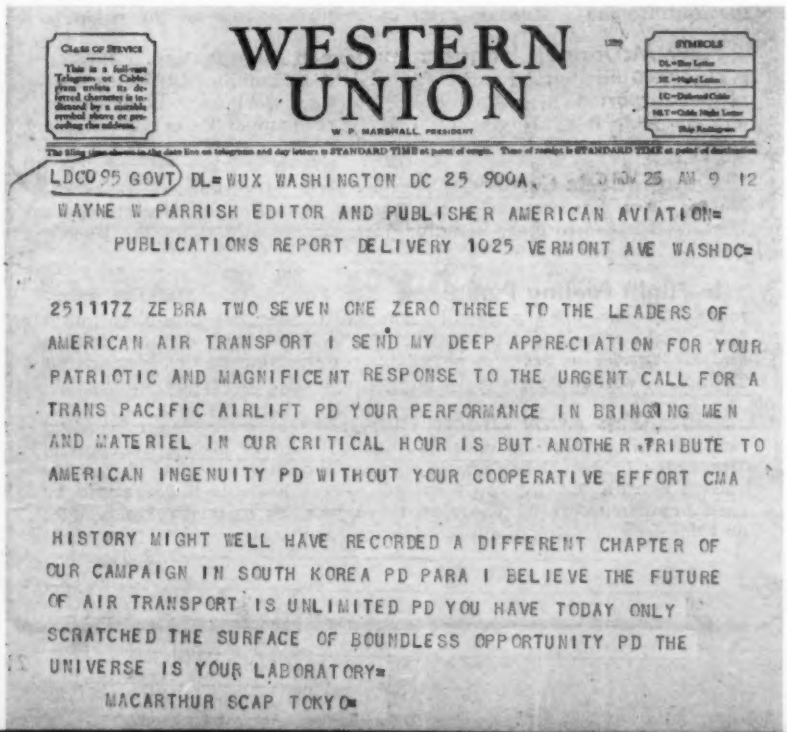
CAB Chairman Rentzel was introduced by Senator Edwin C. Johnson (D., Colo), chairman of the Senate Interstate and Foreign Commerce Committee. Postmaster General Jesse M. Donaldson and Secretary of Commerce Sawyer talked briefly, while Wayne W. Parrish, editor and publisher of American Aviation Publications, presided over the meeting.

Rentzel expressed confidence that the meeting would help "clear the air and start government and the aviation industry off to a new and cooperative period of understanding and joint effort . . . to insure an enduringly sound decade of progress for American air carriers through good times and bad, and through peace or war."

The complete guest list follows:

AIRLINES

ALASKA AIRLINES: R. W. Marshall, *board chairman*
ALL AMERICAN AIRWAYS: Robert M. Love, *president*
AMERICAN AIRLINES: C. R. Smith, *president*
BONANZA AIR LINES: Lawrence G. McNeil, *board chairman*
BRANIFF AIRWAYS: Thomas E. Braniff, *president*
CAPITAL AIRLINES: J. H. Carmichael, *president*
CENTRAL AIRLINES: Keith Kahle, *president*
CHICAGO AND SOUTHERN AIR LINES: Carleton Putnam, *board chairman;* Sidney A. Stewart, *president*
COLONIAL AIRLINES: Sigmund Janas, *president*
DELTA AIR LINES: C. E. Woolman, *president*
EASTERN AIR LINES: E. V. Rickenbacker, *president*
EMPIRE AIR LINES: Gwin Hicks, *vice president*
FRONTIER AIRLINES: H. S. Darr, *president*
HAWAIIAN AIRLINES: Stanley C. Kennedy, *president*
HELICOPTER AIR SERVICE: T. Hamil Reidy, *president*
LAKE CENTRAL AIRLINES: John V. Weesner, *executive vice president*
LOS ANGELES AIRWAYS: Clarence M. Belinn, *president*
MID-CONTINENT AIRLINES: J. W. Miller, *president*
MID-WEST AIRLINES: F. C. Anderson, *president*
NATIONAL AIRLINES: G. T. Baker, *president*
NORTHEAST AIRLINES: George E. Gardner, *president*
NORTHWEST AIRLINES: Amos Culbert, *vice president*
OZARK AIR LINES: Laddie H. D. Hamilton, *president*
PACIFIC NORTHERN AIRLINES: Arthur G. Woodley, *president*
PAN AMERICAN-GRACE AIRWAYS: Douglas Campbell, *vice president and general manager*
PAN AMERICAN WORLD AIRWAYS: Juan T. Trippe, *president*
PIEDMONT AIRLINES: T. H. Davis, *president*



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PUBLICATIONS REPORT DELIVERY 1025 VERMONT AVE WASHDC=

2511172 ZEBRA TWO SEVEN ONE ZERO THREE TO THE LEADERS OF AMERICAN AIR TRANSPORT I SEND MY DEEP APPRECIATION FOR YOUR PATRIOTIC AND MAGNIFICENT RESPONSE TO THE URGENT CALL FOR A TRANS PACIFIC AIRLIFT PD YOUR PERFORMANCE IN BRINGING MEN AND MATERIEL IN OUR CRITICAL HOUR IS BUT ANOTHER TRIBUTE TO AMERICAN INGENUITY PD WITHOUT YOUR COOPERATIVE EFFORT CMA

HISTORY MIGHT WELL HAVE RECORDED A DIFFERENT CHAPTER OF OUR CAMPAIGN IN SOUTH KOREA PD PARA I BELIEVE THE FUTURE OF AIR TRANSPORT IS UNLIMITED PD YOU HAVE TODAY ONLY SCRATCHED THE SURFACE OF BOUNDLESS OPPORTUNITY PD THE UNIVERSE IS YOUR LABORATORY=
MACARTHUR SCAP TOKYO=

DEEP APPRECIATION to the airlines for their emergency aid in the trans-Pacific airlift to Korea was cabled to the dinner by Gen. Douglas MacArthur. The message was received on November 25, just after the North Koreans had been driven above the 38th parallel.

AT THIS DINNER FOR NOTABLES, the speakers' table was limited to eight, same number as the other "head tables". From left to right are Maj. Gen. Laurence S. Kuter, commander, MATS; Emory S. Land, president, ATA; Jesse M. Donaldson, Postmaster General; Delos W. Rentzel, chairman, Civil Aeronautics Board; Wayne W. Parrish, editor and publisher, American Aviation Publications; Sen. Edwin C. Johnson, Colorado; Charles Sawyer, Secretary of Commerce; DeWitt C. Ramsey, president, Aircraft Industries Association.

PIONEER AIR LINES: Robert J. Smith, *president*
RESORT AIRLINES: L. C. Burwell, Jr., *president*
ROBINSON AIRLINES: Robert E. Peach, *executive vice president*
SLICK AIRWAYS: Thomas L. Grace, *president*
SOUTHERN AIRWAYS: Frank W. Hulse, *president*
SOUTHWEST AIRWAYS: T. R. Mitchell, *vice president*
TRANS-PACIFIC AIRLINES, LTD.: David A. Benz, *executive vice president*
TRANS-TEXAS AIRWAYS: R. E. McKaughan, *president*
TRANS WORLD AIRLINES: Warren Lee Pierson, *board chairman;* Ralph S. Damon, *president*
UNITED AIR LINES: W. A. Patterson, *president*
U. S. AIRLINES: George M. McCleary, *president*
WESTERN AIR LINES: T. C. Drinkwater, *president*
E. W. WIGGINS AIRWAYS: Joseph Garside, *president*
WISCONSIN CENTRAL AIRLINES: Francis M. Higgins, *president*

AIR TRANSPORT ASSOCIATION

Emory S. Land, *president*
Robert Ramspeck, *vice president*
Milton W. Arnold, *vice president*
M. F. Redfern, *vice president*
Stuart G. Tipton, *counsel*

AIR CARGO, INC.

Emery F. Johnson, *general manager*

CONGRESS

Sen. Edwin C. Johnson, *Colorado*
Sen. Owen Brewster, *Maine*
Rep. Lindley Beckworth, *Texas*
Rep. Carl Hinshaw, *California*

MILITARY

Maj. Gen. Laurence S. Kuter, *Commander, Military Air Transport Service*
Rear Adm. John P. Whitney, *Vice Commander, Military Air Transport Service*
Col. Bernt Balchen, *Alaskan Air Command, USAF*

GOVERNMENT

Jesse M. Donaldson, *Postmaster General*
Charles Sawyer, *Secretary of Commerce*
John Redding, *Assistant Postmaster General*
Delos W. Rentzel, *Chairman, Civil Aeronautics Board*
Harold L. Jones, *Civil Aeronautics Board*
Russell B. Adams, *Civil Aeronautics Board*
Donald W. Nyrop, *Civil Aeronautics Administrator*
James M. Verner, *acting executive director, Civil Aeronautics Board*
Edward J. Slattery, Jr., *chief, Public Information Section, CAB*

MANUFACTURERS

DeWitt C. Ramsey, *president, Aircraft Industries Association*

Reception

Canapes *Mid-Continent*, Missouri
Stone Crab *Eastern*, Florida — Cold Baked Salmon *Northwest*, Alaska
Shrimp Arnaud *Chicago & Southern*, New Orleans
Smoked Oysters *West Coast*, Seattle — Cracked Crab *United*, Seattle
Oysters *All American*, Chesapeake Bay
Oysters *Capital*, Gulf of Mexico — Oysters *Capital*, Norfolk
Cold Lobster *Northeast*, Boston
Smoked Ham *Ozark*, Arkansas — Smoked Turkey *Lake Central*, Kentucky
Macadamia Nuts *Hawaiian* — Toasted Coconut *United*, Hawaii
Deviled Eggs *Piedmont*, North Carolina
Gouda Cheese *Pan American*, Netherlands — New York State Cheese *Robinson*
Black Canyon Cheese *Continental*, Colorado
Cheese *Wisconsin Central* — Blue Cheese *Pan American*, Denmark
Cigarettes *Piedmont*, North Carolina — Carnations *Western*, Colorado
Complete Bar Service *American Aviation*

Dinner

Ruby Red Grapefruit *Trans-Texas*, Rio Grande Valley
Diamond Jim Moran's Gumbo *Delta*, New Orleans
Avocado Salad *National*, Cuba — Salad Dressing *Southwest*, California
Charcoal-Broiled Steak *American* (Amon Carter, Shady Oak Farm, Ft. Worth)
Baked Potato *Empire*, Idaho — Sweet Potato *Southern*, Alabama
Assorted Fresh Vegetables *Slick-Pioneer*, Rio Grande Valley
Bermuda Onions, *Colonial* — Colorado Celery *Frontier-Continental*
Dinner Accessories: Fresh Creamery Butter *Mid-West*, Iowa
Cranberry Sauce *Wiggins*, Massachusetts — Olives *Southwest*, California
Radishes and Dates *Bonanza*, Arizona
Pumpkin Pie *Central*, Oklahoma — Whipped Cream *Wisconsin Central*
Coffee *Braniff*, Brazil — Coffee Cream *Wisconsin Central*
Gouda Cheese *Pan American*, Netherlands — Blue Cheese *Pan American*, Denmark
New York State Cheese *Robinson* — Wisconsin Cheese *Wisconsin Central*
Black Canyon Cheese *Continental*, Colorado
Cherry Heering Liqueur *Pan American*, Denmark
Wine *Panagra*, Chile — Champagne *American Aviation*
Cigars *National*, Havana
Flowers *Flying Tigers*, California
Perfume for the Ladies *Trans World*, Paris

FOODS AND DELICACIES for the reception and dinner were flown in by the airlines from all parts of the United States, Alaska, Hawaii, Bermuda, Europe, and South America. Menu, above, links the airlines with the items provided or flown.

MORE RENTZEL DINNER VIEWS ON FOLLOWING SIX PAGES

REFLECTING GAIETY are Postmaster General Jesse M. Donald son; Capt. Eddie Rickenbacker, president of Eastern Air Lines; Secretary of Commerce Charles Sawyer; Wayne W. Parrish, editor of American Aviation, and Delos W. Rentzel.

SECRETARY OF COMMERCE Charles Sawyer and Admiral deWitt C. Ramsey, president, Aircraft Industries Association.

JOHN REDDING, Assistant Postmaster General, and Gwin Hicks, vice president of Empire Air Lines.

MAJ. GEN. KUTER, commander of MATS, and Emory S. Land, ATA president.

MILTON W. ARNOLD, vice president of ATA (left); Col. Bernt Balchen, Alaskan Air Command, USAF; Senator Owen Brewster.

AFTER THE DINNER and speeches, congratulations from Ralph S. Damon, TWA president (right), to Rentzel, flanked on the left by Postmaster General Donaldson, and on the right by Parrish.

Land,

Bernt
ester.

CAPITAL AIRLINES' president J. H. (Slim) Carmichael is bedecked with carnation by Doris Rowzee, of American Aviation.

SENATOR JOHNSON and Rentzel show skepticism over undisclosed document.

THOMAS E. BRANIFF, president of Braniff Airways, and Harold L. Jones, member of Civil Aeronautics Board.

IMPROMPTU REMARKS from cabinet member Charles Sawyer, Secretary of Commerce.

. . . every table a 'head table'

AROUND TABLES, from front left: Keith Kahle, president, Central; Sigmund Janas, president, Colonial; Stephen R. Kent, American Aviation; H. S. Darr, president, Frontier; Senator Owen Brewster, Maine; J. H. Carmichael, president, Capital; Rear Adm. John P. Whitney, vice commander, MATS; T. Hamil Reidy, president, Helicopter Air Service.

John V. Weesner, executive vice president, Lake Central; Laddie H. D. Hamilton, president, Ozark; E. J. Stackpole, Jr., American Aviation; T. C. Drinkwater, president, Western; James M. Verner, acting executive director, CAB; E. V. Rickenbacker, president, Eastern; Robert M. Love, president, All American; Arthur G. Woodley, president, Pacific Northern.

Robert J. Smith, president, Pioneer; W. A. Patterson, president, United; Russell B. Adams, member, Civil Aeronautics Board; Robert E. Peach, executive vice president, Robinson; G. T. Baker, president, National; Emery F. Johnson, general manager, Air Cargo, Inc.; Joseph Garside, president, Wiggins; Leonard Eiserer, American Aviation.

R. W. Marshall, board chairman, Alaska Airlines; Carleton Putnam, board chairman, Chicago and Southern; Robert Ramspeck, vice president; Air Transport Association; Warren Lee Pierson, board chairman, TWA; Richard G. Worcester, American Aviation; Edward J. Slattery, Jr., Public Information Section, CAB; William V. Henzey, American Aviation; F. C. Anderson, president, Mid-West.

William D. Perreault, American Aviation; Milton W. Arnold, vice president, ATA; Ralph S. Damon, president, TWA; Donald W. Nyrop, Civil Aeronautics Administrator; T. H. Davis, president, Piedmont; T. R. Mitchell, vice president, Southwest; Amos Culbert, vice president, Northwest; Col. Bernt Balchen, Alaskan Air Command.

R. E. McKaughan, president, Trans-Texas; Rep. Carl Hinshaw, California; C. E. Woolman, president, Delta; James J. Haggerty, Jr., American Aviation; Douglas Campbell, vice president, Panagra; A. H. Stackpole, American Aviation; Stanley C. Kennedy, president, Hawaiian Airlines.

George M. McCleary, president, U. S. Airlines; Daniel S. Wentz II, American Aviation, Thomas E. Braniff, president, Braniff; Frank W. Hulse, president, Southern; Sidney A. Stewart, president, Chicago and Southern; Keith Saunders, American Aviation; David A. Benz, executive vice president, Trans-Pacific; Rep. Lindley Beckworth, Texas.

Gwin Hicks, vice president, Empire; Gerard B. Dobben, American Aviation; Stuart G. Tipton, counsel, ATA; George E. Gardner, president, Northeast; Lawrence G. McNeil, board chairman, Bonanza; Clarence M. Belinn, president, Los Angeles Airways; C. R. Smith, president, American.

L. C. Burwell Jr., president, Resort; Thomas L. Grace, president, Slick; Juan T. Trippe, president, Pan American; Harold L. Jones, member, Civil Aeronautics Board; J. W. Miller, president, Mid-Continent; M. F. Redfern, vice president, ATA; Francis M. Higgins, president, Wisconsin Central; Eric Bramley, American Aviation.

CONTINUED

Rentzel Dinner Continued

Record gathering of U. S. airline heads

(1) R. E. McKaughan, president, Trans-Texas Airways; (2) John V. Woesner, executive vice president, Lake Central Airlines; (3) Arthur G. Woodley, president, Pacific Northern Airlines; (4) G. T. Baker, president, National Airlines; (5) Warren Lee Pierson, board chairman, Trans World Airlines;

(6) Laddie H. D. Hamilton, president, Ozark Air Lines; (7) Robert E. Peach, executive vice president, Robinson Airlines; (8) H. S. Darr, president, Frontier Airlines; (9) Douglas Campbell, vice president, Pan American-Grace Airways; (10) Stanley C. Kennedy, president, Hawaiian Airlines;

(11) Gwin Hicks, vice president, Empire Air Lines; (12) C. R. Smith, president, American Airlines; (13) J. H. Carmichael, president, Capital Airlines; (14) Frank W. Hulse, president, Southern Airways; (15) George E. Gardner, president, Northeast Airlines;

(16) George M. McCleary, president, U. S. Airlines; (17) T. Hamil Reidy, president, Helicopter Air Service; (18) T. R. Mitchell, vice president, Southwest Airways; (19) Thomas E. Braniff, president, Braniff Airways; (20) David A. Benz, executive vice president, Trans-Pacific Airlines;

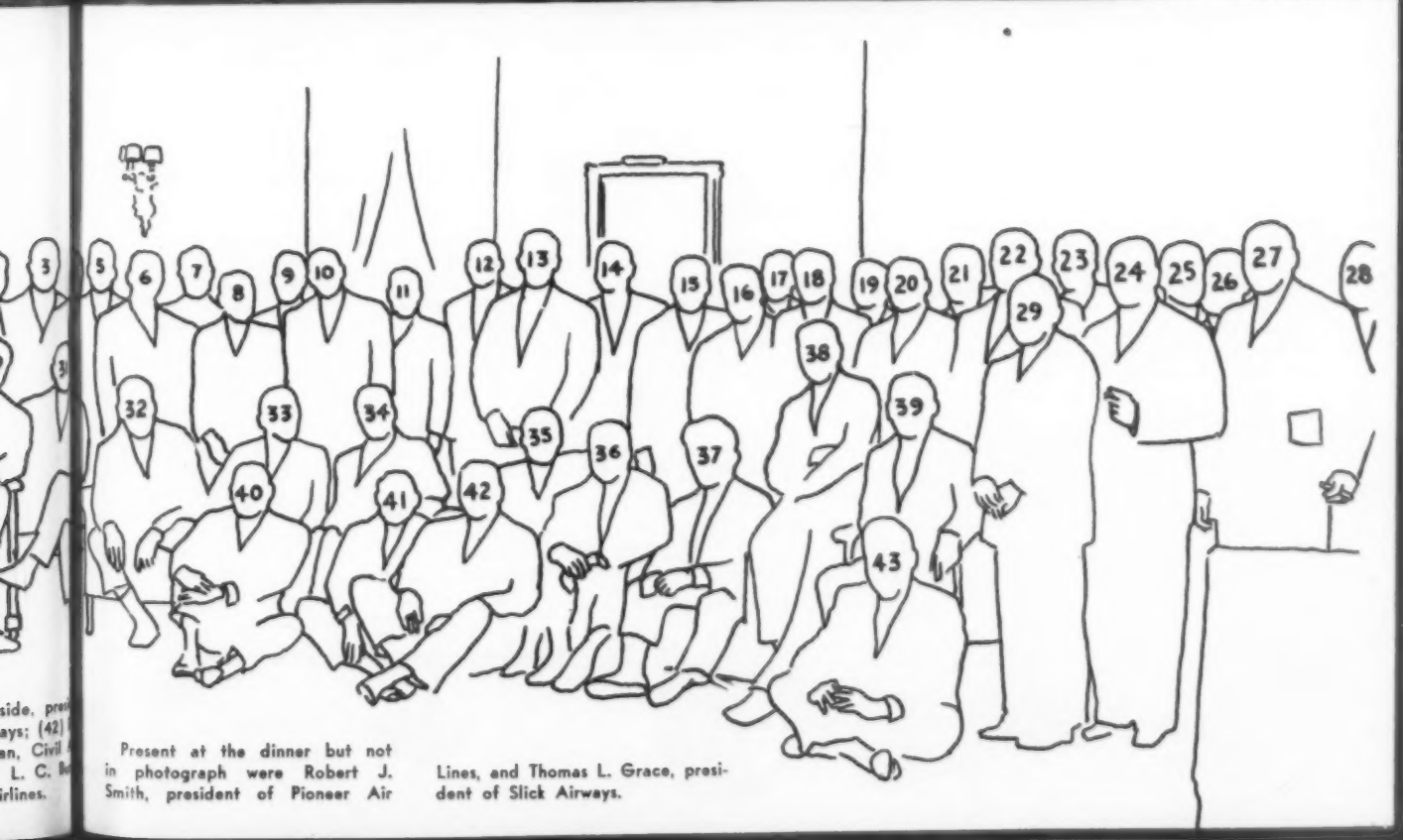
(21) Sidney A. Stewart, president, Chicago and Southern Air Lines; (22) T. C. Drinkwater, president, Western Air Lines; (23) Amos Culbert, vice president, Northwest Airlines; (24) Juan T. Trippe, president, Pan American World Airways; (25) R. W. Marshall, board chairman, Aleska Airlines;

(26) Lawrence G. McNeil, board chairman, Bonanza Air Lines; (27) Clarence M. Belinn, president, Los Angeles Airways; (28) T. H. Davis, president, Piedmont Airlines; (29) W. A. Patterson, president, United Air Lines; (30) J. W. Miller, president, Mid-Continent Airlines;

(31) Sigmund Janas, president, Colonial Airlines; (32) C. E. Woolman, president, Delta Air Lines; (33) E. V. Rickenbacker, president, Eastern Air Lines; (34) Carleton Putnam, board chairman, Chicago and Southern Air Lines; (35) Ralph S. Damon, president, Trans World Airlines;

(36) Keith Kahle, president, Central Airlines; (37) Francis M. Higgins, president, Wisconsin Central Airlines; (38) Robert M. Love, president, All American Airways; (39) F. C. Anderson, president, Mid-West Airlines; (40) Wayne W. Parrish, editor and publisher of American Aviation;

(41) Joseph Garside, pres... E. W. Wiggins Airways; (42) ... W. Rentzel, chairman, Civil ... nautics Board; (43) L. C. B... president, Resort Airlines.



Present at the dinner but not in photograph were Robert J. Smith, president of Pioneer Air Lines, and Thomas L. Grace, president of Slick Airways.

1950 — Year of Engineering Achievement

By RICHARD G. WORCESTER

ACHIEVEMENTS and shortcomings of twelve months' hard work by industry and the operators are seldom easy to see in perspective at the end of the year; they often become glaringly obvious much later. But December is a good time to draw a line across the path of progress and try to add up some trends of the year.

A steady deterioration in international affairs was affecting all branches of aviation in the first half of the year and in the latter half the Korean War and the consequent threat to world peace forced the nation to re-arm as rapidly as a peacetime economy would allow.

Technically, 1950 will be remembered as the time in which the U. S. re-entered the turboprop field and the year saw the first flight of many new types. The biggest was the Convair XP5Y-1 boat with its four Allison T-40s which quickly established the turboprop endurance record. This was in fact a double triumph because the world's smallest turbine, the AiResearch midget was tucked in a corner of the fuselage and provided the auxiliary power.

P&W Flies T-34

This success was rapidly followed by the first flight of the Douglas A2D-1 and later in the year Pratt and Whitney flew one of their T-34 turboprops in the nose of a B-17 test-bed. The T-40 and T-34 hold promise of improving out of all recognition the performance of future types of Boeing C-97 and Douglas C-124A heavy transports. This year the Northrop Turbodyne also reached the stage of practicability. At the end of the year comes news that the Convair Turbo-Liner was to fly and the little Boeing 501 turboprop will soon fly in a Cessna lightplane.

Nearly all the modern airframes like the Martin 4-0-4, the Lockheed Constellation L-1049, the Boeing C-97 and Douglas C-124A are being restressed to take the higher flight loads and greater shaft output of the turbines. Curtiss, Hamilton Standard and Aeroproducts have all announced new propellers to match the characteristics of these new engines.

Turbojet Progress

In the field of turbojets no entirely new designations have yet reached the flight stage but projects are now running at over 10,000 lbs. static thrust on the test bench. This has been a year of improvement in durability and in further development of afterburners. The Pratt and Whitney J-48 (designed by the British expressly for U. S. application) with its afterburner gives this engine a thrust which is as much as constructors can use in the airframes now in service.

Later in the year General Electric revealed details of new variants of the J-47 with and without afterburner. Curtiss-Wright's reported production of the Sapphire and interest in other British turbines will provide U. S. airframe makers with a broader range of thrusts and afford greater geographical dispersion of the vital jet engine production centers.

This has been a year of unprecedented progress on giant aircraft, with Convair turning out more B-36's than ever before. The USAF ran some spectacular trials with the huge C-99, and production of C-124A and C-97's is steadily mounting. Northrop delivered the YRB-49A Flying Wing, now disfigured with pods, which will be the last phase of this aerodynamic adventure. An air of static defiance has settled over the slipway where the enormous Hughes boat still sleeps: this company has completed, but apparently not yet flown, the world's largest helicopter, the XH-17 Flying Crane.

A string of new fighters have been built, including North American's YF-93A, and F-86D. Other versions of the F-86 have an all-moving stabilizer and the Avro Orenda jet. Lockheed's line of F-80's finally dried up and now T-33 trainers and various versions of the F-94 are in full swing. Latterly there has been talk of a ground attack model of the F-94C.

Republic flew the first F-84F which, in production form, with 7,000 lbs. thrust will have a maximum speed of over 700 mph. The next phase of fighters will have speeds of 1,000 mph. using two staggered jets of 8,000 lbs. thrust in the fuselage, rates of climb of 30,000 ft. per min. with only moderate maximum weights of well below 20,000 lbs. This in turn will lead to even more compact fighters which will have a vertical takeoff and landing with extreme mobility.

Martin's Transports

In the world of civil aviation the major event of the year has been the dramatic return of Martin with the EAL and TWA order for seventy-five 4-0-4s and announcement of the mili-

B-47 with Dihedral— This hitherto unpublished picture shows dihedral on a Boeing B-47. Put a straight edge along the wing and it will be seen the wings have several degrees of dihedral in flight, mainly along the outboard section. This is a wing of about 15% thickness ratio of multi-spare construction and torsion is taken by a tapered skin of root thickness 5/8th inch, decreasing to 3/16th inch at the tip. The sheet material is 75 S T-6 and the aspect ratio is over 9. The B-47 has been flown with one tip engine and the outer pod engine on one side shut off.

tary transport, the Airlift 4-0-4. Lockheed and Boeing have issued their thoughts on jet transports of varying speeds, ranges and payloads but lack of support still prevents any detailed design. Lockheed's Constellation L-1049 (by cutting out the refueling stop, which calculations show are essential to a comparable jet) has made it even more difficult to evolve a jet which could offer any practical advantage.

The year has seen Wright put their Turbo-Cyclone into service which offers increased output for a given consumption or keener consumption for a given output. The Navy will use the first alternative and trans-Atlantic operators may choose the second or try either. Other points at random were Boeing's Flying Boom refueling system which will apply usefully to a range of different tankers and refuel anything from fighters to transports.

Grumman and McDonnell have kept up a steady flow of Navy jet fighters. Convair flew a B-36 with a track gear. Fairchild flew the C-120 Pack Plane and progress continues on the Piasecki XH-16 helicopter able to take the same pod.

Boeing Bombers

Some details were given of two Boeing intercontinental transonic heavy jet bombers, the B-47C and XB-52, while production of the B-47 gets steadily under way. Before long all three models should be capable of speeds of Mach .9 in level flight. Chase won a contract for their C-123 assault transport and Sikorsky sold their S-55 license to Westland in England.

Surveying some design highlights during the year, in engine development there has been evidence of work on annular combustors with ceramic linings; electronically controlled variable-exit nozzles; refinement of cast low-cobalt turbine buckets; internal re-heat with fuel injected ahead of the turbine wheel but the flame safely behind it; turbine buckets of a solid fused crystalline alumina and split compressors—(incidentally, we were wrong a month ago to imply that the P&W T-34 uses this compressor and associated turbine drive).

The point has been reached in aircraft performance when the blow-out characteristics of turbines make ceilings less easily predictable and transonic flight loads make it harder than ever to tie down a single maximum speed. In construction the ultimate design factors are mounting from 12 to 15, and even 18, for operational aircraft, far above human limits. But here are still many serious gaps in knowledge whose effects are incalculable, such as the pattern of fatigue at high speed and the computation of safe structure life.

Design Trends

By Richard G. Worcester

AVIATION is such a relentlessly serious subject that even in a time of national relaxation during the last days of the year it is easy to understand why the collective frown of concentration on the faces of industry and the operators lifts so slowly. Being in the aviation business is like sitting continually on a rumbling volcano; but possibly this is the clinching reason why the aviation community should not take itself too seriously. Still it is difficult to make light of aviation responsibilities at any time.

•

After that dizzy French luncheon a couple of years ago a great international assembly went out into the airfield at Orly near Paris to watch France's return to aviation after the isthmus years of the war. It was perfectly clear then that the Dassault Ouragan was going to be an outstanding weapon which the West could use, and we in this magazine have been plugging if off and on from that historic day to this.

Now comes good news that Dassault has won a contract for 750 Ouragans and is to have SNCASO and many other companies subcontracting the parts. The U. S. taxpayer, who is in effect sponsoring the French air rearmament, can rest assured that this fighter will be a real contribution to European defense.

•

One of our bright contemporary publications pictures a scene of company officials biting their fingernails waiting for a sudden Pentagon decision on whether the USAF will use one type of intercontinental turbine bomber or another. This is not less farcical than Hollywood's idea of top industry executives being influenced by a Woody Woodpecker cartoon. Both have an air of such fantastic unreality that they betray an almost incredible ignorance of how industry tackles major tasks.

The XB-52 is a very long term project which does not suddenly start or stop but represents a decade of backbreaking work. The XB-52 means years of wind tunnel research; years of analysis; years of development; thousands upon thousands of design man-hours and years of detailed engineering by thousands of specialists. The B-47-52 program at **Boeing Airplane Co.** will be the major life's work of many hundreds of employes at the company. Anyone who has walked through the acres of laboratories at Seattle will understand the magnitude of the effort and the enormity of the misconception.

•

A major and apparently inherent shortcoming in aircraft procurement is the difficulty in matching the priority of each requirement with its effect on the final product. If, for instance, one condition is insisted upon at an early stage in the life of an airplane, the system of co-operation between industry and operator is not flexible enough to show fully to the operator the drastic compromises which may be necessary in other directions.

This problem is aggravated by the relatively rapid turn-over of military personnel in the planning departments and the consequent lack of continuity at the formulative stage of a design which in turn is ultimately seen in the efficiency of the completed product. The industry allows for these difficulties by designing for every conceivable eventuality but the real remedy lies in a more even distribution of technical knowledge so that those who ask for aircraft able to perform a certain duty can understand more clearly in the initial stage the degree of realism in their request.

•

Watch for a wider recognition of cold welding aircraft structures. This is an invention of the General Electric Co. Ltd. (no relation to G. E.), and Lockheed was probably the first to see its production possibilities.

Operational Policy Group's Report:

Radar Will Be Primary Traffic Control Aid

By WILLIAM D. PERREAULT

TEN days ago the Operational Policy Group of ACC's Navigation Panel completed what will undoubtedly prove to be the most important document ever compiled on air navigation and traffic control. The report represents the start of phase three of the RTCA's SC-31 report and establishes the manner in which the general recommendations of SC-31 shall be accomplished.

In essence it provides a workable pattern which will permit the civil airways to handle non-tactical military and civil aircraft of all types expeditiously. Its flexibility is emphasized by the claim that it will handle jet aircraft or helicopters with equal ease.

The latter statement has been in part borne out by full-scale tests conducted at Wright-Patterson AFB recently in which the same general procedures were used successfully in one week's trial operation.

Radar Basic Facility

Basic soundness of the newly established policy is reflected in the decision to build the system and procedures on existing equipment plus new units as required. Nothing is sacrificed in the advances made to date. Radar will be used as the primary traffic control facility and all other equipments and procedures will be used to supplement radar and serve the radar controller.

This decision is further reflected in the fact that the great bulk of required equipment will be ground equipment. Airborne equipment is kept to a minimum and this means that the private pilot will get a break. With a minimum investment even the personal pilot will share the system aimed to meet civil and defense requirements.

At airports in congested air traffic areas radar approach and departure procedures are recommended for 24-hour use regardless of weather. The report notes that at the present time existing air traffic control procedures are not even adequate to handle visual flight rule requirements.

Radar control will also reach out into the en route navigation area with the CAA controllers using the Air Defense Warning Network as a means of controlling traffic over congested routes between major air terminals. This will probably be accomplished by the use of remoted radar scopes. The Department of Defense has agreed to this arrangement which makes the special long-range radar available and simultaneously helps to keep controllers alert and in practice.

Air Safety Beacon

To extend the usefulness of radar, regardless of type, the report urges priority development of an air safety beacon. This device is an airborne piece of equipment which in effect strengthens the signal picked up by the radar. Use of the ASB would be universally required. Every effort would be made to develop inexpensive, light-weight beacons.

The report contains many important decisions affecting the operation of the scheduled air carrier. Operational control, a controversial issue, has been delegated to the aircraft operator. There had been some consideration given to delegating this control to an agency but this is overruled.

The holding stack will not disappear. To insure maximum utilization of the airport runways during peak operations a controlled reservoir will be used. Landing sequences will be assigned and adjusted as necessary to meet unusual conditions. In such cases landing sequences will be rearranged to distribute the delay equally and maintain the same priority. Aircraft in the stack will be handled on a first come, first served basis, regardless of type, size or mission.

Advance Delay Advice

To minimize the problem of delays, additional information on estimated delay times will be provided prior to the start of the flight. In this manner crews will be able to accept this delay on the ground or in flight to meet their own operations. This delay prediction will be transmitted to the teletype weather sequence for each airport on the CAA Service A or XA. A special Traffic Delay Predictor will be developed.

As traffic control is improved, the airport will become the bottleneck. To prevent this from happening, immediate action will be required in improving airport designs with an eye toward traffic control problems in the air and on the ground. At airports handling 40 landings and 40 takeoffs per hour during average traffic peaks, dual parallel runways will be required.

Such runways must be separated by at least 3,000 feet to permit simultaneous landings and takeoffs and by an even greater distance to permit simultaneous landings. The importance of this is emphasized by existing parallel runways which use about 1,000-foot separation.

Optimum runway width is 200 feet, the report notes. This compares with a number of 300-foot runways built in recent years. The traffic control program calls for stepped-up use of surveillance radar (PPI) approaches which will permit vectoring of aircraft to speed landings and use of more than the ILS runway for instrument approaches. This will call for implementing high-intensity runway lights on other than the ILS runway.

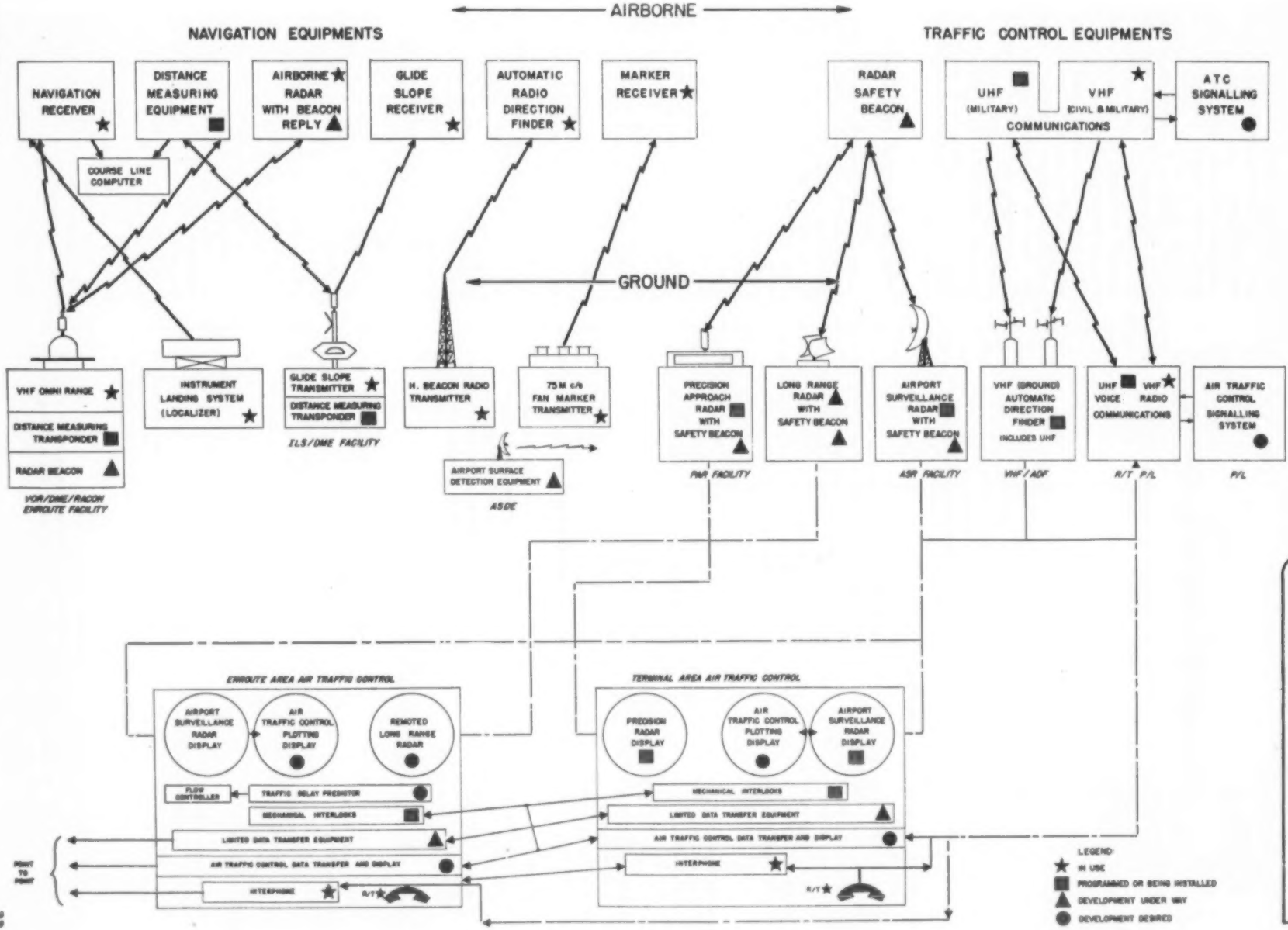
Further agreement on high-intensity approach lights is required.

Surface Detection Units

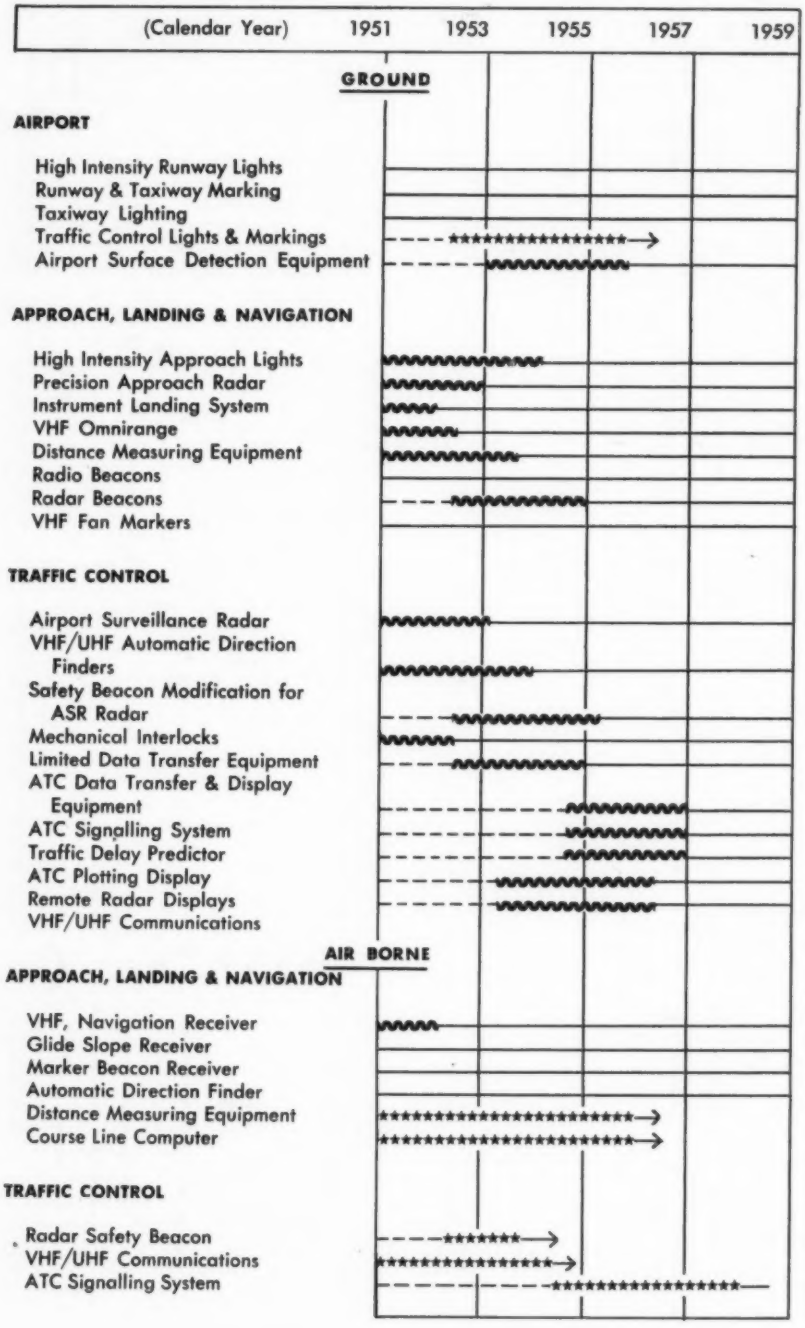
Once the aircraft is on the surface of the airport it must be directed off the runway and to its destination with rapidity and safety. This will require improvement and installation of runway and taxiway markers, newly designed intersections, and airport surface detection equipment. Taxiways leading off the runway must have exits prominently marked and designed to permit landing aircraft to leave the runway at speeds of 30-45 mph. This will permit maintaining runway occupancy to 35-45 seconds which is the maximum pos-

How Equipment Picture Will Look

This drawing (opposite page) shows the types of airborne and ground equipment which will be used in the period covered by the OPG report. Note the division of equipments according to their use for navigation or traffic control purposes and whether equipment is required on the ground or in the aircraft. Heavy black arrows denote the relationship between airborne and ground equipment. It is significant that the greater part of the equipment is ground-based and that the user can choose elaborate or simple equipment depending on the nature of his own requirements.


AIRBORNE
NAVIGATION EQUIPMENTS
TRAFFIC CONTROL EQUIPMENTS
NAVIGATION RECEIVER
DISTANCE MEASURING EQUIPMENT
AIRBORNE RADAR WITH BEACON REPLY
GLIDE SLOPE RECEIVER
AUTOMATIC RADIO DIRECTION FINDER
MARKER RECEIVER
RADAR SAFETY BEACON
UHF (MILITARY)
VHF (CIVIL & MILITARY)
COMMUNICATIONS
ATC SIGNALLING SYSTEM
COURSE LINE COMPUTER
GROUND
VHF OMNI RANGE
DISTANCE MEASURING TRANSPONDER
RADAR BEACON
VOR/DME/RACON ENROUTE FACILITY
INSTRUMENT LANDING SYSTEM (LOCALIZER)
GLIDE SLOPE TRANSMITTER
DISTANCE MEASURING TRANSPONDER
ILS/DME FACILITY
H. BEACON RADIO TRANSMITTER
75M c/s FAN MARKER TRANSMITTER
AIRPORT SURFACE DETECTION EQUIPMENT
ASDE
PRECISION APPROACH RADAR WITH SAFETY BEACON
PAR FACILITY
LONG RANGE RADAR WITH SAFETY BEACON
AIRPORT SURVEILLANCE RADAR WITH SAFETY BEACON
ASR FACILITY
VHF (GROUND) AUTOMATIC DIRECTION FINDER
INCLUDES UHF
VHF/ADF
UHF VOICE VHF RADIO COMMUNICATIONS
R/T P/L
AIR TRAFFIC CONTROL SIGNALLING SYSTEM
P/L
ENROUTE AREA AIR TRAFFIC CONTROL
AIRPORT SURVEILLANCE RADAR DISPLAY
AIR TRAFFIC CONTROL PLOTTING DISPLAY
REMOTED LONG RANGE RADAR
FLOW CONTROLLER
TRAFFIC DELAY PREDICTOR
MECHANICAL INTERLOCKS
LIMITED DATA TRANSFER EQUIPMENT
AIR TRAFFIC CONTROL DATA TRANSFER AND DISPLAY
INTERPHONE
R/T
POINT TO POINT
TERMINAL AREA AIR TRAFFIC CONTROL
PRECISION RADAR DISPLAY
AIR TRAFFIC CONTROL PLOTTING DISPLAY
AIRPORT SURVEILLANCE RADAR DISPLAY
MECHANICAL INTERLOCKS
LIMITED DATA TRANSFER EQUIPMENT
AIR TRAFFIC CONTROL DATA TRANSFER AND DISPLAY
INTERPHONE
R/T
LEGEND:
IN USE
PROGRAMMED OR BEING INSTALLED
DEVELOPMENT UNDER WAY
DEVELOPMENT DESIRED

EQUIPMENT IMPLEMENTATION CHART



LEGEND: Development & Evaluation – – – – – – –
Production & Installation ∿∿∿∿∿∿∿∿∿∿∿∿∿∿∿∿
Available for Production & Installation ********
System in Use ————————

sible if 40 landings per hour is to be accomplished.

Airport Surface Detection Equipment is now under development by CAA as part of its ANDB assignments. This will be a radar aid which will provide the ground controller with a continuous picture of aircraft positions and movement on the airport proper.

The communications load is already an important factor in determining maximum landing rates. The load is increasing and exceeds the useful capacity of the communications channels available to it. This has been alleviated to some degree by new procedures, such as direct ARTC-aircraft contacts but this is not enough.

Multi-Channel Receivers

The OPG recommends that radio manufacturers work on development of cheaper multi-channel receivers for aircraft and that all operators adopt available multi-channel equipment where possible. While many civil and military aircraft use four-channel equipment, eight-channel units are being made available and 24, 40, 50 and as high as 180 (in UHF equipment) are on the way.

Meanwhile the program calls for development of an Air Traffic Control Signaling System which will provide visual signals in the cockpit of individual airplanes which will replace many of the voice instructions. Various types of ATC signaling systems have been under consideration.

The accompanying charts show the nature of the airborne and ground equipment that will be required to implement the systems described here and the projected time-table for development, production and ultimate use. Many of the items of equipment listed have become familiar to the trade in the past few years and in regular progress reports (AMERICAN AVIATION, Nov. 27). Other items of equipment are new or have been renamed and the prominent ones are defined briefly below.

• **Air Safety Beacon**—This transponder is an airborne unit which will probably sell for about $100 or less in production quantities. Its purpose is to insure radar coverage during conditions of sleet, snow, and thunderstorms, etc., by reinforcing the signal which would normally be received by radar. It is equally important for small aircraft with poor reflecting surfaces for the radar and the moderate-sized, fast jet aircraft with similar problems. Production units will probably provide a means of identity by making the aircraft "blip" on the radar scope stand out

above others by simply pushing the microphone button.

• **Air Traffic Control Signalling System**—A symbolic display on a cockpit instrument containing instructions such as: hold, proceed, land, execute missed approach, begin approach, turn right, turn left, descend, climb, or turn beacon on or off. Using this device instructions would be relayed from the associated ground equipment to the pilot without voice communications. Means would be provided to request changes in routing and for acknowledging instructions. The ATC signalling system would help relieve the voice problem.

• **Air Traffic Control Data Transfer and Display Equipment**—At present, data required regarding identification, destination, etc., of aircraft entering a control zone is communicated by voice methods and manually recorded. ATC data transfer and display equipment would provide semi-automatic symbolic displays to communicate this information in such a way as to eliminate much of the work load and minimize chances of error.

Principal use would be for clearing an aircraft from one area to another, or one altitude to another during traffic control. Typical data which would be transferred automatically along with clearances would be aircraft identification, altitude, time, speed, route and destination. The data would vary according to the area of use and would be manually inserted at first contact.

• **Airport Surface Detection Equipment**—This will be a radar device which will continuously scan the surface of the airport and show the position of all aircraft in relation to other objects with an accuracy of within 50 feet. Display would be on a scale of not less than 1,000 feet per inch. Even now, with existing minimums, inability to accurately direct traffic on the airport is hampering operations on the airport, particularly in marginal weather, but also on large airports where all areas are not visible from the tower.

• **Traffic Delay Predictor**—This is a computing device, not yet developed, which will provide an estimated delay for any given future time when an aircraft arrives at a particular airport. It will be capable of handling a 24 hour forecast. The operator will manually provide information on predicted acceptance rate for period under analysis, predicted traffic demand (based on history of periods) and actual traffic demand for periods at time data is cranked into the predictor. The predictor will probably handle an area which may involve a number of airports but data will be remotely supplied as required.

Extra Section

By William D. Perreault

PERIODICALLY we have occasion to refer to the petroleum requirements of the aviation industry. Generally the occasion arises in reporting on a technical paper or on the effect of additional taxes on aviation fuel. Each time, shortly after the magazine is published, we get letters from various groups seeking more details. They request information showing petroleum use in the industry with relation to total quantity used, percentage of each octane or grade, consumption by airline, distribution by states, individual service requirements, etc. We've checked our best sources without avail. Is such information recorded?

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At best, assembled propellers provide an awkward package for air shipping. We were interested to see sketches of the Boeing Stratofreighter, military version of the Stratocruiser, with two assembled propellers slung under the fuselage. Simple rigid attachment fittings are provided for locking the assembled propellers in place. The propeller dome is carried inside the airplane and a special collar is used between the hub and fuselage.

•

Those of us who have spent most of our time with piston engine considerations will have to orient ourselves to the new aspects of turbine engines to meet increasing interest in the new engine types. One of our common terms of reference, specific fuel consumption, seems a prime target for early consideration. With piston engines reference is generally made to SFC during cruising engine operations which runs approximately .45 to .5 pounds per horsepower hour. With turbine engines most of the SFC figures we've seen, although used without specific reference to conditions, apply to takeoff conditions at full power. Apparently this can increase substantially for cruising operation, depending on the particular engine and cruise power used.

•

Recently the USAF announced the development of a new 20-man liferaft for use in large aircraft. The accompanying pictures showed the raft in its compact carrier and also opened up in the water. We couldn't help but think that this "new" raft is the same thing the commercial airlines have been using for a number of years on all overseas flights. Regardless of the newness of the raft, this emergency equipment has come a long way in the past ten years and chances for survival following ditching in temperate climates has improved substantially as a result.

•

I was talking recently with **Dr. F. W. Reichelderfer**, chief of the U. S. Weather Bureau, his assistant **D. M. Little**, and **N. A. Lieurance**, head of the WB's aviation section. One can't talk with this group without coming away with the feeling that they have aviation interests at heart. Actually, aviation represents a small cross-section of their efforts which include all civil weather forecasting activities, yet they always have an active program under way for bettering their services to aviation.

•

Indications are that several operators of the Convair Liners, Martins and Douglas DC-6's are thinking of converting their current P&W R-2800 engines to the CB-16 series which will be standard equipment on the Martin 4-0-4's, Convair 240-A's and late model 6's. While the CB-16 has the same basic takeoff horsepower rating it provides for substantially better operations at altitude through improved supercharging. The associated parts problem is now under study.

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AMONG THE SUPPLIERS

Completion of the transaction whereby **Thompson Products, Inc.**, will acquire the assets of the **Perfect Circle Corp.** has been postponed to January 31 because of legal problems . . . Ingersoll Steel Division of **Borg-Warner Corp.** is being separated into two independently operated manufacturing units. One unit, headed by **Harold G. Ingersoll**, will continue to be known as Ingersoll Steel Division, with mills at New Castle, Ind. The other, with plants in Chicago and Kalamazoo, Mich., will be called Ingersoll Products Division and will be headed by **Robert S. Ingersoll** . . . **Aviation Distributors and Manufacturers Assn.** is planning to open a Washington office about next June.

Rohr Aircraft Corp., Chula Vista, Calif. has increased the work week of its 3,300 employes from a 40-hour week to a six-day, 48-hour week . . . **General Electric Co.** has named **Herbert L. Ross** to succeed **Joseph F. Eckel** as manager of the GE River Works at Lynn, Mass. Eckel has been appointed manager of GE's Large Motor and Generator Divisions . . . **Albert M. Fiala** has been named manager of government sales in the industrial products sales department of **The B. F. Goodrich Co.**, Akron, Ohio . . . **Sperry Gyroscope Co.** of Canada Ltd., newly formed subsidiary of **The Sperry Corp.**, has appointed **B. Wensley King**, formerly with Canadair Ltd., as managing director. Offices are in the International Aviation Building, Montreal.

Brush Development Co., Cleveland, Ohio, manufacturer of communications and recording equipment, has purchased the business of the **Faxfilm Co.** of Cleveland, producers of surface measuring equipment . . . The Air Force has awarded a contract totaling $1,650,000 to **Fashion Frocks, Inc.**, Cincinnati, Ohio, for troop parachute assemblies; a similar contract totaling $1,636,250 was awarded to **Atlantic Parachute Corp.**, Lowell, Mass. . . . **William L. Cunningham** has been appointed district sales manager for **Bendix Radio Communications Division** with headquarters at Chicago, Ill. . . . **Robert H. Noorduyn** has been named representative in the New York area for the **Aero Corp.**, Atlanta, Ga.

Aerol Co., Burbank, Calif., subsidiary of **Lockheed Aircraft Corp.**, has completed new laboratory test facilities which duplicate field conditions in the industrial wheel and caster field to a high degree of accuracy . . . **Ward Leonard Electric Co.**, Mount Vernon, N. Y., has established an Industrial Chrome Division, under the management of **William G. Dawson**, to handle development and manufacture of chrome plating units . . . **United Lacquer Manufacturing Corp.**, Linden, N. J., has developed a new plastic synthetic finish, VB 248, to dull reflecting surfaces of stainless steel in guided missiles, aircraft instruments and other apparatus.

Dr. Edward M. Pritchard, former chief engineer for Fisher-Pierce Co. and application engineer for Sigma Instrument Co., has been named chief electrical engineer for **Control Engineering Corp.**, Canton, Mass. . . . **Gordon B. Brown & Associates** has appointed **Roland S. Saye** as senior engineer.

NEW PRODUCTS

Mobiloader

A new mobile loading unit featuring a 21-foot conveyor belt has been introduced by Sage Equipment Co. The rough-top, rubberized material of the belt permits it to handle concentrated

loads of 500 pounds or distributed loads of 1,500 pounds. The frame which supports the belt is readily raised or lowered. Mounted on a truck built by the Dodge Div. of Chrysler Corp., the unit can be moved rapidly from one plane to another or from one loading door to another. Sage is building a number of the units for American Airlines.

When writing the **Sage Equipment Co.**, 30 Essex St., Buffalo 13, N. Y., please mention AMERICAN AVIATION.

Utility Grinder

A 6-inch utility grinder for tool rooms, machine shops, manufacturing plants, etc., has been announced by The Lima Electric Motor Co. The 37-pound Model A grinder features dynamically balanced rotors, integrally cast wheel guards; adjustable tool rests; heavy-duty, off-on toggle switch; etc. Uses a ½-horsepower, 3,450-rpm Lima motor of dust proof construction, single-phase ac., 60-cycle, 115 or 230-volt (single voltage only). Also available for 2-3 phase ac, 60-cycle, 220 or 440-volt operation. Prelubricated sealed ball bearings; 6-inch diameter x ¾-inch face wheels.

When writing **The Lima Electric Motor Co.**, Dept. AA16, Lima, Ohio, please mention AMERICAN AVIATION.

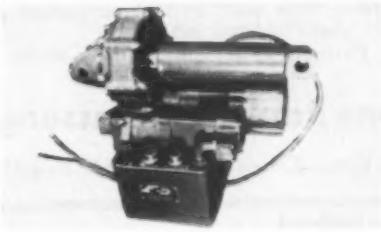
Tumbling Machine

A new tumbling machine with increased capacity for grinding, de-burring and finishing metal parts is now being offered by the Grav-i-Flo Corp. The tumbler is five feet eight inches wide, five feet four inches deep and five feet eight inches high. It features two 24 x 40-inch ID compartments and is rated to handle 30% larger work load than comparable machines occupying the same floor space, the manufacturer claims. Compartments are furnished with ½-inch plate, unlined, or ¼-inch plate rubber-lined. Doors are provided with cam locks with manually released safety stops to provide pressure relief. The 220-440-volt, five-horsepower motor has a magnetic brake. Water and electrical services are integral with the machine.

When writing the **Grav-i-Flo Corp.**, 400 Norwood Ave., Sturgis, Mich., please mention AMERICAN AVIATION.

Powered Actuator

A new series of dual motor power units for actuation of stabilizers on turboprop and turbojet aircraft has been introduced by Electrical Engineering and Manufacturing Corp. The series incorporated a large motor for high-speed actuation in fast maneuvers and a smaller motor for normal actuation such as signaled by the autopilot. One such unit uses a 1/10-horsepower motor to operate continuously under control of the autopilot while a 3.3-horsepower motor takes care of higher rates for maneuvering. Individual gear reductions provide a drive rate of 6/100 inch per second and 7/10 inch per



second to the screw jack. Normal operating load is 11,000 pounds, static load 80,000 pounds.

When writing **Electrical Engineering and Manufacturing Corp.**, 4612 W. Jefferson Blvd., Los Angeles, Calif., please mention AMERICAN AVIATION.

Fog Nozzle

A three-way fog nozzle that will extinguish oil, electrical, paint and other type fires has been announced by Bete Fog Nozzle, Inc. The Bete G-5 can be changed from full fog to straight stream or completely shut off by a turn of the handle. The patented spiral tip and movable core, the manufacturer claims, is self-cleaning and "practically non-clogging." An inner spray cone protects the operator eliminating air pockets and driving fire away, while the outer cone provides coverage and a fine fog to extinguish fire quickly with minimum amount of water. Operable on pressures from 30-150 pounds. At 100 pounds it takes eight gallons per minute for fog and 10 gallons per minute for straight stream. List price is $16.50, FOB.

When writing the **Bete Fog Nozzle, Inc.**, 85 Pierce St., Greenfield, Mass., please mention AMERICAN AVIATION.

Airline Seat

Positive seat adjustment through four stages to a 50-degree semi-reclining position is a feature of the new TECO TE-200 airline seat. The design incorporates a Chrome-Moly steel frame and supporting structure allowing more simple design and weight savings over

conventional ST tubular seat frames, the manufacturer claims. Arm rests change positions as the seat is reclined. Available in wide variety of long-life fabrics over contoured airfoam cushions. Well suited for air coach conversion for high-density seating arrangements.

When writing **Transport Equipment Co.**, 2505 North Ontario St., Burbank, Calif., please mention AMERICAN AVIATION.

Hardness Tester

A hardness tester which automatically certifies acceptable pieces and registers total number inspected has been introduced by Topflight Tool Co. Designed for sheet metal parts, the Topflight hardness tester performs three operations. Metal strips to be tested are manually placed between the needle and anvil of the open jaws. A dial reading provides ready reference to hardness values, a green light flashes if it is hard enough, a stamp automatically certifies the piece and the counter registers the total pieces inspected. If not of the required hardness the light does not flash, the stamp doesn't mark the piece and the counter doesn't

register. A conversion chart can be used to check with Brinell, Rockwell or Vickers numbers.

When writing the **Topflight Tool Co.**, 116 E. Market St., York, Pa., please mention AMERICAN AVIATION.

25 Top Traffic Stations Dominate Postwar Increases

By GOTCH & CRAWFORD
Planning Consultants

Measured in terms of traffic enplaned, a relatively small number of U. S. domestic airline stations appear to be accounting for the marked improvement in domestic trunkline passenger traffic since the postwar years 1946 to 1948, during which the market levelled off at about 12 million passengers per year and 6 billion passenger miles.

There are today about 400 airline stations certificated for service by the domestic trunkline carriers. During the year ended June 30, 1949 these carriers reported 13,517,827 passengers enplaned at their stations. For the corresponding year ended June 30, 1950 the figure reached 14,675,402, a gain of 1,157,575 passengers, representing an 8.6% rate of increase.

This rate of increase appears to have been far from general, however. Of the 1,157,575 added passengers, 936,366 or slightly more than 80% were enplaned at only 25 stations which have for several years been high-ranking traffic producers. Conversely, a gain of only 221,209 or slightly less than 20% was registered by all of the remaining 375 odd stations.

Account for 68%

For the year ended June 30, 1950 these 25 high-ranking stations accounted for 67.8% of all enplaned trunkline passengers, and for the preceding 12 months for 66.7%. Credited with 80% of the passenger traffic improvement, it is clear that these stations are contributing substantially more toward the industry increase than their normal proportionate share of total business.

Further indication of the above trend lies in the fact that, whereas the passenger traffic enplaned at all stations for the year ended June 30, 1950 was 8.6% above the preceding 12 months, the 25 high ranking stations registered a 10.4% gain, but all remaining stations gained only 4.9%.

Mail enplaned follows a similar pattern. With all domestic stations racking up a gain of 4.4% during the year ended June 30, 1950, the 25-station group improved 6.2% while the remaining stations decreased 1.6%.

Improvement in air express appears to be more general. The gain for all stations was 14.6%, for the 25 station group 15.1% and for the remaining stations 13.1%.

Air Freight

Curiously, in airfreight enplaned the relationship shifts. All stations showed an increase of 23.1%. But the increase for the 25 station group at 21.5% was less than the average, and the remaining stations were better than average at 28.6%.

Among the 25 high-ranking stations Miami made the best showing in passengers enplaned with a gain of 29.6%. All points of the compass

How 25 Trunkline Stations Ranked in Passenger & Air Freight Traffic

For Years Ended June 30, 1949 and 1950

U. S. Trunkline Station	Passengers Enplaned		
	Gain or Loss (—)	Year Ended June 30	
		1950	1949
Miami	29.6%	329,803	254,555
Minneapolis/St. Paul	21.6	282,942	232,650
Philadelphia	19.7	168,992	141,167
Chicago	17.6	1,267,842	1,078,381
San Francisco/Oakland	17.2	520,289	443,863
Detroit	15.9	438,576	378,451
Los Angeles	14.5	656,566	573,688
Kansas City	11.3	277,476	246,356
Pittsburgh	11.2	311,027	279,801
Tampa	10.7	79,133	71,513
Cleveland	10.1	326,015	296,004
Atlanta	9.6	350,481	319,725
New York/Newark	9.1	1,833,067	1,680,182
All Trunkline Stations	8.6	14,675,402	13,517,827
Seattle	8.2	234,166	216,440
New Orleans	8.0	178,809	165,527
Portland, Ore.	6.8	175,582	164,361
Denver	6.7	220,324	206,552
Memphis	6.5	130,855	122,826
Washington	6.0	695,300	655,764
St. Louis	5.1	238,376	226,736
Cincinnati	3.4	183,652	177,630
Phoenix	0.0	70,869	70,889
Houston	—0.4	182,634	183,405
Dallas	—2.0	375,095	382,745
Boston	—5.0	419,836	442,130

U. S. Trunkline Station	Air Freight Tons Enplaned		
	Gain or Loss (—)	Year Ended June 30	
		1950	1949
Tampa	109.7%	801	382
Portland, Ore.	64.1	888	541
Kansas City	62.8	1,576	968
Minneapolis/St. Paul	62 2	2,530	1,560
St. Louis	56.5	1,692	1,081
Pittsburgh	55.6	1,643	1,056
Houston	51.2	558	369
Memphis	50.7	1,037	688
Cincinnati	46.3	1,896	1,296
San Francisco/Oakland	38 5	5,608	4,050
Seattle	36.8	892	652
Philadelphia	35.3	3,238	2,393
Cleveland	33.5	7,016	5,257
Chicago	33.5	22,253	16,675
Detroit	31.3	6,405	4,880
Atlanta	27.1	2,879	2,265
All Trunkline Stations	23.1	149,710	121,579
Dallas	22.6	4,063	3,315
Los Angeles	22.3	7,852	6,418
Miami	20.9	1,136	940
Washington	18.6	2,319	1,956
Phoenix	17.5	255	217
New Orleans	5.2	873	830
New York/Newark	3.7	30,227	29,147
Boston	2.7	4,925	4,796
Denver	—25.2	1,703	2,278

Trunkline Station Traffic Gains & Trunkline Carrier Operating Data

For Years Ended June 30, 1949 and 1950

Trunkline Station Traffic Data

	TRAFFIC ENPLANED			
	Number of Passengers*	Tons Mail	Express	Freight
ALL TRUNKLINE STATIONS				
Year Ended June 30, 1949	13,517,827	56,910	53,327	121,579
Year Ended June 30, 1950	14,675,402	59,409	61,117	149,710
Change	1,157,575	2,499	7,790	28,131
Percentage Change	8.6%	4.4%	14.6%	23.1%
Subtotals 25 High Ranking Stations				
Year Ended June 30, 1949	9,011,341	43,557	40,183	94,010
Year Ended June 30, 1950	9,947,707	46,275	46,257	114,265
Change	936,366	2,718	6,074	20,255
Percentage Change	10.4%	6.2%	15.1%	21.5%
Subtotals All Other Stations				
Year Ended June 30, 1949	4,506,486	13,353	13,144	27,569
Year Ended June 30, 1950	4,727,695	13,134	14,860	35,445
Change	221,209	—219	1,716	7,876
Percentage Change	4.9%	—1.6%	13.1%	28.6%

Trunkline Carrier Passenger Revenue and Traffic Data

	Passenger Revenues (000)	Rev. Psgr. Miles (000)	Revenue Passengers*	Mail Ton-Miles (000)	Express Ton-Miles (000)	Freight Ton-Miles (000)
DOMESTIC TRUNKLINE CARRIERS						
Year Ended June 30, 1949	$363,845	6,240,422	13,372,608	40,739	27,405	83,057
Year Ended June 30, 1950	390,948	6,926,165	14,526,587	41,572	30,313	102,483
Change	27,103	685,743	1,153,979	833	2,908	19,426
Percentage Change	7.5%	9.9%	8.6%	2.0%	10.6%	23.4%

* Station and carrier totals do not reconcile precisely because of minor reporting differences.

are represented by the five leading stations: Miami in the south, Minneapolis in the north, Philadelphia in the east, Chicago in the midwest, and San Francisco in the west. Philadelphia's improvement is noteworthy, for it has for years lagged behind other large cities of comparable size.

The New York market shows a gain of 9.1%, only slightly better than the national average of 8.6%. The three stations representing the southwest—Phoenix, Houston and Dallas—produced from no gain to a loss of 2%. Gains at 13 of the 25 stations exceeded the national average.

Tampa Tops in Cargo

In tons of air freight enplaned all but one of the 25 ranking stations showed improvement. Again a Florida station—Tampa—tops the list. Improvement in the extensive New York market area is noticeably low at 3.7%. Sixteen of the 25 stations did better than the national average of 23.1%, and eight of the stations marked up gains in excess of 50%.

Variations in percentage increase in the operating data of the trunkline industry expressed as passenger miles and ton miles of mail, express and freight, as against the percentage increase for all trunkline stations in enplaned passengers and tons of mail, express and freight are attributable essentially to shifts in average length of haul. For example, the increase of 9.9% in revenue passenger miles as against an increase of only 8.6% in numbers of passengers results from an accompanying increase in average length of passenger trip from 467 to 477 miles.

Average lengths of haul of mail and express decreased somewhat, while that of airfreight remained about the same.

It may be noted in the operating data of the trunkline carriers that the rates of increase in both numbers of passengers and revenue passenger miles at 8.6% and 9.9% respectively are greater than the 7.5% increase in passenger revenues. This relationship is a natural consequence of the wider acceptance of lower yield travel resulting from family-plan, excursion and particularly air coach promotion. For example, during the year ended June 30, 1950, air coach travel was almost 10% of all air travel.

Air Coach Experiment

A large measure of the gains in both passenger traffic and passenger revenues may therefore be attributable to the air coach experiment. Clues which point toward this conclusion are that:

1) of the 13 stations noted on the table as registering passenger gains greater than the national average, all except Philadelphia are receiving aircoach service;

2) most aircoach operations are long-haul, and the average length of passenger trips has increased.

While there may be some element of coincidence in the overall improvement in airline traffic and earnings which have accompanied the various promotional reduced fare experiments, the simple fact stands out that over a million additional passengers were attracted within the 12 month period ended June 30, 1950. Almost 700,000 rode air coaches. How many

Over the Counter

Sales Promotion

AN ATTRACTIVE booklet, "Winter is Wonderful," emphasizing the advantages of winter flying, is being distributed as a direct-mail piece by **American Airlines.** As a clever added feature, AA has clipped to the booklet a memo from "one secretary to another," signed by **Elizabeth Hall,** secretary to **R. E. S. Deichler,** AA's vice president-traffic. It states: "Since it's quite likely *you* make the reservations when the Boss goes on a trip, I thought maybe you, too, would be interested in reading over this folder. It's all about how many more people are travelling by air during the winter, and what makes American's schedules so much more dependable than they were 4, 3, and even 2 years ago. When you're finished reading it, would you see that is reaches your boss?" A smart sales talk.

A few issues ago we reported on a skit entitled "Inside USPO," which the airline men who are members of **Air Transport Association's** air mail committee have been putting on before meetings of postmasters, postal clerks, supervisors, etc. It was a good job of educating postal officials to the advantages of selling air mail and air parcel post service. We are happy to report that a bigger and better show is planned for 1951, and that **Howard Brooks,** who does air mail promotion for **Pan American World Airways,** has already written the script. It's called "Bam, Bam, Bom," taken from the first letters of the words "By Air Mail and By Ordinary Mail." If it plays in your area, catch the show.

Pan American World Airways has printed a new 40-page booklet, "It's a Pan American World," which the company describes as "probably as attractive and complete an 'inside story' of how an airline is operated as has ever been published." Copies available free from PAA, PO Box 1111, New York 17, N. Y.

Ticket Offices

A COMBINED airline ticket office has been opened at 1519 K St., N. W., next to the Statler Hotel in Washington, D. C. by **Northwest Airlines, TWA, Braniff Airways, Colonial Airlines** and **Scandinavian Airlines System.** Each airline except SAS has its own agents and ticket for each other only when rush of business makes it necessary. NWA handles SAS ticket stock. TWA and NWA have given up their downtown Washington offices. The other carriers did not have street-level locations . . . **TWA** has opened a new ticket and reservations office at Fifth Ave. and 50th St., New York City . . . **Pan American World Airways** has transferred its principal traffic office in Venezuela from Barcelona to Puerto La Cruz, seaport of eastern Venezulea and headquarters of several oil companies.

Traffic and Services

SLICK AIRWAYS, certificated all-cargo carrier, started regularly scheduled daily service at Indianapolis on Dec. 7 . . . **Aerovias "Q"** inaugurated service between Havana, Cuba, and Tampa, Fla., on Dec. 20. CAB recently granted the company a three-year authorization to fly between the points . . . **Canadian Pacific Air Lines** has started service three times weekly between Edmonton and North Battleford via Lloydminister which will connect with its daily service from Regina through Moose Jaw, Prince Albert and Saskatoon.

There has been no appreciable effect on volume of travel from Havana to the U. S. since this country on Dec. 1 reinstated a requirement that Cubans must have passports and visas to enter, according to **Pan American World Airways.** For several years Cubans with passports had been admitted for 29-day visits without being required to obtain a U. S. consular visa . . . Through agreement between Pan American and Nicaraguan customs authorities, deliveries of air shipments in Managua have been speeded. Inspection at the airport has been eliminated, and the only check is now made at the downtown customs office . . . **Air France** has inaugurated weekly local service between Ft. Lamy and El Geneina, in the Anglo-Egyptian Soudan, over the wartime route used by Air Transport Command.

National Airlines on Dec. 15 inaugurated air coach service between New York and Washington and Tampa. New York-Tampa fare is $46.50, a $20.45 cut from first-class tariff . . . **TWA** and Lanseair Travel Service Inc., starting Jan. 1, will offer to Gold Star parents and their friends two different tours, combining sightseeing and visits to American war graves in Europe. A 14-day tour will include London, Amsterdam, Brussels and Paris ($682.50), and a 15-day trip will cover Paris and Italy ($745). Prices will be higher after Mar. 15, when trans-Atlantic excursion rates expire. Each tour member will have the right to visit, at no additional cost, any one cemetery of his choice from the nearest point encountered while on the tour.

Canadian-Pacific Airlines on Jan. 13 adds Auckland, New Zealand, as a stop on its Vancouver-Australia service. CPA is pushing Fiji, New Zealand and Australia as vacation spots.

—ERIC BRAMLEY

traveled at family-plan and excursion rates is not reported, but their number must be substantial.

The foregoing trends would indicate that the airline industry's lower fare experiments are producing favorable results, but essentially in the established major traffic markets. Most of the promotional effort has been focused on these markets, and much of the lower fare service has been limited to them. Only time, additional experimentation and study will determine the extent to which similar broadening of the base in lesser traffic markets may be economically warranted.

How Air Mail Compensation Ranks Among U. S. Airlines

For the peak traffic month of July, 1950, the percentage of air mail compensation to total operating revenues of all U. S. air carriers, domestic and international combined, reveals an interesting alignment with international carriers showing up fairly high on the scale. The compilation was made from CAB reports carried by AMERICAN AVIATION.

Rank	Carrier	%
1	Hawaiian	0.8
2	Eastern	4.0
3	American	4.1
4	United	5.9
5	Western—Inland	9.6
6	TWA	10.4
7	Delta	11.3
8	Capital	11.7
9	National	11.9
10	American Overseas	12.0
11	Pan American	14.3
12	Northwest	15.6
13	Northeast	17.9
14	Braniff	20.2
15	Colonial	20.3
16	Caribbean	21.1
17	Mid-Continent	21.7
18	Continental	24.3
19	Panagra	25.8
20	Chicago and Southern	27.7
21	Southwest	35.7
22	Robinson	37.5
23	Pioneer	38.6
24	Piedmont	41.8
25	West Coast	44.8
26	All American	53.8
27	Empire	60.0
28	Bonanza	63.0
29	Frontier	65.7
30	Turner	69.0
31	Wisconsin Central	69.5
32	Southern	70.6
33	Trans-Texas	71.6
34	Central	88.0
35	Mid-West	90.5
36	Wiggins	90.6

Plight of the Air Freight Salesman

(Editor's Note—The following article was written by a district sales manager for a large scheduled airline. His name, known to the editors, is withheld so that he can speak his mind frankly on the subject of air freight):

LET us consider the plight of the Air Freight Salesman.

Air freight is the last thing to be loaded, first to be off-loaded, and last in the hearts of the rest of the company.

It seems to me that the scheduled airlines, excepting the all-cargo lines, have a real selling job to do as concerns air freight within their own organizations.

Practically all supervisory personnel from top management on down to and beyond district traffic managers and station managers grew up in this business before carriage of cargo, except mail, amounted to anything at all, and I am afraid most of us are still not convinced that air freight is worthwhile.

Because we are not familiar with the detail of handling air freight (tariffs, waybills, etc.), there is a natural tendency to stay as far away from it as possible in order not to reveal our ignorance. Most of us could still do a reasonably efficient job on the ticket counter or in a reservations department in an emergency, but I am afraid we would be completely lost if we tried to handle an air freight transaction.

Freight Men Need Help

Because most supervisory personnel do not know anything about air freight, employes who are trying to develop the service are not receiving all the help, support, and guidance they deserve and need. Furthermore, it is apparent that lack of knowledge and interest in air freight service on the part of supervisors in both traffic and operations is reflected in the attitude of employes under their jurisdiction.

The air freight people receive very little help from other personnel. If the people charged with the responsibility of handling air freight transactions are not immediately available, the handling must wait until they are on hand, because no one else is capable of taking over, and in nine cases out of 10 is not sufficiently interested anyway.

I grew up in the passenger end of the business and that is still *my* primary concern. However, I sincerely believe that our air freight service would develop faster if more of our own people knew something about it and felt that it was important.

Little Time for Selling

Because he has pretty largely to carry the ball himself, and because air freight is the last thing to be loaded, first off-loaded, etc., the air freight salesman is unable to spend a reasonable amount of time *selling*. Even in periods of just normal activity he has almost literally to stand guard over his customers' shipments inbound as well as outbound to make sure they reach their destination as promptly as possible.

In this activity he isn't trying to put air freight ahead of express or mail; he is merely trying to make sure the freight doesn't get pushed off into a corner and stay there for a day or two until someone has time to take care of it.

The service must be good or his business will be lost. Our salesman is *not too worried about other air competition*, because if some other line gets the business, he has only to wait until that line fouls up a few shipments and then the customer will be back with our salesman again. However, *surface competition* can give him a lot of trouble.

Hot-Shot Competition

On destinations up to 1,000 miles or so, a truck line, of all things, can set up a hot-shot schedule to handle some bit of consistent traffic and can beat him unless his service is really on the ball. It hadn't seemed practical, in the beginning, to tell the prospective customer we didn't guarantee that his stuff would move right away. So, our salesman finds himself trying to deliver a high priority type of service while the company's manuals clearly instruct station personnel to load air freight *after everything else*.

Auditors and the accounting department are problems, too, and just giving a lick and a promise to their demands and criticisms will take away a sizeable chunk of time which might otherwise be productive.

But the Air Freight Salesman and his fellow converts love air freight, and they know that the crusade which they are carrying on so largely by themselves will result in a glorious future for air freight.

When that great day comes, if indeed it ever does, let the rest of the industry give credit where credit is due. And that would be *all* of the credit.

CAB CALENDAR

Jan. 3—(Docket 3908) Hearing in American Air Transport Sec. 291 Individual Exemption Case. Tentative. Examiner R. Vernon Radcliffe.

Jan. 8—(Docket 3758 et al.) Hearing in Additional Service to State of Kansas Case. Tentative. Examiner James S. Keith. Postponed from November 20.

Jan. 8—(Docket 2849 et al.) Hearing in Big Four Mail Rate Case. Tentative.

Jan. 8—(Docket 4586) Hearing in West Coast Common Fares Case. 10 a. m., Room E-214, Temp. Bldg. 5, Washington, D. C. Examiner F. Merritt Ruhlen. Postponed from December 11.

Jan. 8—(Docket 4590) Hearing in Oxnard Sky Freight Enforcement Proceeding. Tentative.

Jan. 8—(Docket 3844) Hearing on Miami Airline's Sec. 291.16 Exemption Application. Tentative. Examiner Ferdinand D. Moran.

Jan. 16—(Docket 3153) Hearing on Chicago and Southern Air Lines' application for service to Maracaibo, Venezuela. 10 a. m., Room E-214, Temporary Bldg. 5, Washington, D. C. Examiner Curtis C. Henderson.

U. S. International Airline Traffic for September, 1950

Airlines	Revenue Passengers	Revenue Passenger Miles	Available Seat Miles	Passenger Load Factor	U. S. Mail Ton-Miles ***	Foreign Mail Ton-Miles	Express Ton-Miles	Freight Ton-Miles	Total Ton-Miles Rev. Traffic	Available Ton-Miles Flown	% Available Ton-Miles Used	Revenue Plane-Miles	Scheduled Miles	% Scheduled Miles Completed
				%										
American	7,761	5,994,000	9,582,000	62.55	10,031	2,582	1,034	128,200	775,081	1,295,602	59.82	190,853	175,733	100.00
AOA *	13,928	19,729,000	28,001,000	70.46	134,162	51,365	198,442	. . . .	2,517,992	3,682,995	68.37	549,107	585,628	90.01
Braniff	1,924	3,851,000	8,532,000	45.14	5,835	1,481	. . . .	69,666	449,582	1,225,916	36.67	202,898	222,791	91.07
C & S	1,897	2,386,000	5,395,000	44.23	2,682	320	. . . .	57,885	310,161	645,721	48.03	140,924	139,554	100.00
Colonial	2,893	2,370,000	3,363,000	70.47	435	352	. . . .	2,437	253,720	404,163	62.78	64,666	52,836	98.98
Eastern	1,529	1,590,000	3,456,000	46.01	7,198	. . . .	. . . .	14,423	189,339	409,032	46.29	62,400	62,400	100.00
National	6,129	1,689,000	3,470,000	48.67	948	. . . .	3,058	32,443	209,621	458,872	45.68	64,182	62,880	95.34
Northwest	5,277	10,208,000	16,316,000	62.56	159,714	25,134	27,704	516,386	1,842,169	2,494,896	73.84	486,888	474,159	100.00
Panagra	8,629	8,752,000	18,009,000	48.60	29,872	20,899	130,628	. . . .	1,149,645	2,396,198	47.98	478,273	473,205	99.86
PAA														
Latin Amer.	59,300	59,898,000	88,075,000	68.01	220,125	56,779	1,747,245	52,848	7,934,873	12,524,144	63.36	2,305,860	1,881,641	99.66
Atlantic	19,465	39,537,000	48,135,000	82.14	316,028	75,781	719,826	6,977	5,431,900	7,166,184	75.80	1,157,552	1,095,287	98.03
Pacific	6,100	20,143,000	32,391,000	62.19	447,844	45,935	506,298	. . . .	3,000,325	4,877,581	61.51	724,218	724,221	96.69
Alaska	6,284	5,604,000	8,780,000	63.83	31,918	. . . .	361,128	. . . .	981,383	1,634,374	60.05	240,539	209,306	94.17
TWA	13,976	40,480,000	59,874,000	67.61	233,879	103,061	. . . .	535,084	5,303,695	8,203,585	64.65	1,405,562	1,391,708	97.93
United	3,304	10,729,000	14,170,000	75.72	50,604	. . . .	. . . .	1,249,707**	2,445,742	3,162,767	77.33	554,225	168,000	100.00
TOTALS	158,396	232,960,000	347,549,000	67.02	1,651,275	383,689	3,695,363	2,666,056	32,795,228	50,582,030	64.83	8,628,147	7,719,349	97.73

* Figures for AOA are through September 25, 1950.
** Includes 2,446 ton miles of army mail under military contract.
*** Includes air parcel post.

NOTE: Data in above tabulations were compiled by American Aviation Publications from monthly reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; C & S to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient and Honolulu, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.

U. S. Feeder Airline Revenues & Expenses, July-Sept., 1950

Airlines	Total Operating Revenues	Passenger Revenues	Mail Revenues	Express Revenues	Freight Revenues	Excess Baggage Revenues	Non-Scheduled Transport Rev.	Total Operating Expenses	Aircraft Operating Expenses	Ground & Indirect Expenses	Net Operating Income
All American	$ 881,044	$ 463,775	$ 397,980	$ 11,809	$ . . .	$ 2,221	$ 1,371	$ 867,825	$ 434,949	$ 432,876	$ 13,218
Bonanza	200,729	67,784	127,381	254	1,099	781	3,009	211,774	82,892	128,882	-11,045
Central	158,606	18,321	135,832	. . .	. . .	143	3,953	191,442	86,511	104,930	-32,836
Empire	276,659	114,467	153,493	1,566	. . .	677	4,146	244,844	138,094	106,750	31,814
Frontier*	940,543	299,596	615,240	4,868	13,502	2,950	2,930	957,513	462,152	495,361	-16,969
MCA**	5,356	5,088	**	114	108	36	. . .	9,749	3,684	6,065	-4,393
Mid-West	141,056	14,545	126,314	. . .	. . .	90	. . .	132,996	56,893	76,104	8,060
Piedmont	904,774	441,104	436,995	8,398	11,632	3,906	. . .	726,411	397,618	328,793	178,363
Pioneer	841,072	481,335	306,667	4,323	10,335	3,513	30,498	793,026	376,903	416,122	48,046
Robinson	264,695	159,210	94,007	5,208	2,659	557	1,902	317,951	174,386	143,566	-53,256
Southern	317,314	90,743	219,477	3,817	. . .	465	893	394,047	207,150	186,896	-76,732
Southwest	606,773	362,689	199,040	4,986	11,384	293	25,583	497,929	201,470	296,459	108,844
Trans-Texas	692,542	184,117	495,481	2,279	5,005	999	3,492	590,785	269,028	321,757	101,757
Turner	167,150	29,485	98,124	2,703	. . .	142	36,696	171,624	92,631	78,994	-4,474
West Coast	362,008	201,101	149,836	1,809	3,057	550	3,201	301,101	132,595	168,507	60,907
Wiggins	76,646	6,630	69,927	. . .	. . .	25	64	69,475	32,133	37,342	7,171
Wis. Central	456,679	133,639	316,257	5,496	. . .	801	. . .	431,648	227,011	204,637	25,031
TOTALS	7,293,646	3,073,629	3,942,051	57,630	58,781	18,149	117,738	6,910,140	3,376,100	3,534,041	383,506
					Helicopter Mail Service						
Hel. Air Serv.	93,123	. . . .	93,113	. . .	. . .	. . .	. . .	86,051	52,202	33,850	7,071
Los Angeles	108,337	. . . .	108,332	. . .	. . .	. . .	. . .	102,136	64,996	37,140	6,201

* Formerly Challenger Airlines and Monarch Air Lines. Companies have merged and are now operating under name of Frontier Airlines, Inc.
** Figures cover feeder segment recently awarded MCA by CAB in the Parks Air Lines Investigation Case. Carrier began operating over this route September 26, 1950. Mail rate has not yet been established, therefore no mail revenue included on this report.

NOTE: Under CAB filing procedures, the airlines file a cumulative quarterly financial report for July-September in place of a separate statement for the month of September. Traffic data, however, are reported separately for each month.

Alaskan Airline Balance Sheet Data as of June 30, 1950

Airlines	Total Assets	Current Assets	Investments & Special Funds	Operating Prop. & Equipment	Deferred Charges	Current Liabilities	Long-Term Debt	Deferred Credits	Operating Reserves	Capital Stock	Surplus
Alaska	$ 2,055,459	$ 522,868	$ 2,032	$ 1,407,546	$ 120,940	$1,125,354	$	$ 8,441	$ 100,189	$ 604,246	$ 217,228
Alas. Coastal	443,956	111,983	28,242	286,434	12,966	88,400	264,000	4,377	29,156	113,914	-55,891
Cordova	98,323	41,374	799	48,698	7,451	57,553	16,400	1,462	336	15,850	23,892
Ellis	301,861	66,390	. . . .	205,482	9,614	29,412	63,373	. . . .	. . . .	57,204	151,871
North. Consol.	675,701	259,739	409	293,317	57,504	496,754	155,014	37,535	. . . .	320,000	-333,603
Pacific North.	954,396	526,214	. . . .	252,102	65,363	258,333	. . . .	46,879	. . . .	666,444	-17,260
Reeve	368,649	100,540	. . . .	245,583	19,716	148,155	839	21,485	. . . .	171,043	27,126
Wien Alaska	413,437	184,518	1,695	217,726	9,498	286,506	17,200	. . . .	8,695	107,100	413,739
TOTALS	5,311,782	1,814,126	33,177	2,956,888	303,052	2,490,467	516,826	120,179	138,376	2,055,801	427,102

AIRLINE PEOPLE

ADMINISTRATIVE

Amon G. Carter, Fort Worth publisher and a director of American Airlines, was awarded the 11th annual Frank M. Hawks Memorial Award at a dinner sponsored by Air Service Post 501 of the American Legion in New York. Award was made to the Texan for "his many contributions to American aviation."

Samuel A. Pond, formerly labor relations superintendent for Pan American World Airways in San Franciso, has transferred to New York as labor relations supervisor for the Atlantic Division.

Stanley Marcus, executive vice president of Neiman Marcus, Dallas fashion store, has been elected to the board of directors of Slick Airways.

James P. Van Pelt, southern regional sales director for National Airlines for the past two years, has been appointed director of NAL's new Industrial Information Bureau. He is a 12-year sales veteran with the airline.

OPERATIONS-MAINTENANCE

Ralph Benton has been appointed as chief flight agent for Robinson Airlines.

A. L. Hollis, formerly station manager for Delta Air Lines at Alexandria, La., has been transferred to Tyler, Texas, and **Ike Tarver** has temporarily assumed Hollis' former duties at Alexandria. **T. J. O'Shea,** formerly station manager at Tyler, has been assigned to the office of the superintendent of stations in Atlanta.

Richard Kimber has been promoted from chief transportation agent for Trans World Airlines at Kansas City Air Terminal to wage & salary job analyst. **Jim Small,** former lead transportation agent, took over Kimber's airport post. New lead agent is **Venard Rodeberg** and new transportation agent is **Roy Vaughn,** formerly lead cargo agent.

Frank W. Taylor, formerly traffic representative for Pan American World Airways in Houston, has been named station manager at St. Lucia, British West Indies, replacing **Cecil Dicks.** The latter will return to Miami for reassignment.

Alexander George, Jr., for the past two years assistant station manager for Northwest Airlines at Anchorage, has been appointed station manager at Shemya in the Aleutian Islands.

TRAFFIC & SALES

Philip Seifert has been promoted to passenger sales superintendent of Pan American World Airways' Latin American Division. He joined PAA four

Airline Commentary

By Eric Bramley

HAROLD HARRIS has laid it on the line. The vice president of the Atlantic Division of Pan American World Airways has authored an article in the Pan American *Clipper,* company houseorgan, entitled "How Long Do You Think Your Job Will Last?" He points out that some employes take an I-don't-care attitude toward passengers because they're thinking, "We never know when the next sudden cutback will come. We never know whether it will get us, or someone next to us."

Remarks Harris: "No fairy is around to wave a magic wand. In our civilization, any sense of relative security comes only after hard work and after it has been earned."

The passenger, Harris writes, "is the Number One Salesman for Pan American . . . or he is the one basically responsible for cutbacks." He then proceeds to document his case. Reprinted for all to see is the complete text of a letter written to a travel agent by the executive secretary of a firm employing 800 people. The firm had been buying a lot of travel on PAA through the agent. "My main complaint . . . is . . . the lack of concern which Pan American seems to have for its passengers. I feel that I am traveling with a line that is impersonal. I pay my money, I take what comes . . . Our transportation agent will be applying to you shortly for reservations for me to Honolulu, Japan, Hong Kong, and other points . . . I am asking that he request reservations on some line other than Pan American . . . The general trend of service which I have found on Pan American . . . leads me to feel that I should have our people stop using their service."

The travel agent to whom the secretary wrote, Harris explains, has given PAA business amounting to as much as $200,000 a year. If he diverted it elsewhere, 66 PAA employes would have to be laid off to make up for the loss of revenue. "In another case a travel agent who has given us $300,000 a year in business has advised that he is diverting all of his future business to other carriers," he says, commenting: "We have cured them of riding with *us.* They will continue to travel to destinations on our route, but their fares will be paying someone else's salary . . . not yours or mine."

Harris presented the facts brutally. Don't snicker because PAA received such letters. All airlines get them, but they're seldom this frank about it. For our money, this is the Number One article of the year on the value of passenger service.

•

Tom Bell, TWA's Washington public relations manager, tells us that a passenger rushed up to the airline's ticket counter at Washington National Airport and discovered that he'd missed his plane by 55 minutes. "I sure feel silly about this," he said. "I'm an alarm clock salesman and I overslept—with 74 alarm clocks in the sample case beside the bed."

•

Best news we've received in a long time is that our friend **John Leslie,** vice president of Pan American World Airways, is making a courageous fight back after being completely paralyzed with polio some months ago. He writes us that "my particular polio bug hit me rather hard, but I am making rather amazing progress here at home and the doctors assure me that I will be back on active duty with Pan American before very long." John is one of the real nice people in the aviation business and we're delighted to hear of his progress.

•

Northeast Airlines, we are told, has its Link Trainer room adjacent to the passenger terminal in Boston, with a big plate glass window so the public can watch the pilots training on the Link. A darn fine public relations and sales promotion idea.

•

We take this opportunity to wish everyone the best of everything for the holiday season. Thanks to those of you whose contributions have been of great help to this column during 1950. May your interest continue in 1951.

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years ago as assistant airport traffic manager at Miami and subsequently served as district traffic manager in San Juan and Port of Spain. **Theodore C. Pelikan,** who joined PAA in Brownsville in 1935, is filling Seifert's former post as agency and interline representative.

John F. Forsyth has been named manager of general sales development for Trans World Airlines. He joined TWA as a passenger sales representative in New York in 1943, and until his recent appointment he had been supervisor in the passenger sales department.

Forsyth

M. E. Sullivan, district of traffic for Western Air Lines, has been named 1951 chairman of the industry's air freight tariffs and rates committee, succeeding **R. D. Watson,** traffic manager for Northwest Airlines.

Robert D. Gilman, formerly district sales manager for Northeast Airlines at Boston, has been appointed to the New England agency staff of Trans World Airlines.

Richard J. Jeppesen, formerly city traffic manager for Chicago and Southern Air Lines in Houston, has become a sales representative for Mid-Continent Airlines in Chicago.

William H. Fobes, Jr., district traffic manager for Mid-Continent Airlines at Minneapolis/St. Paul since 1947, has been promoted to northern region manager of traffic and sales, based in the Twin Cities. He had been with Northwest Airlines before joining MCA in 1947.

Fobes

James H. Hanna has returned to the cargo sales department of SABENA Belgian Airlines following a five-month leave of absence during which he was connected with a commercial contract carrier in the Pacific air lift.

Robert K. Miller has been promoted from assistant superintendent of interline and agency development to sales promotion manager for Mid-Continent Airlines.

Gil Daniel, formerly chief reservations supervisor for Delta Air Lines at Jackson, has transferred to Birmingham as chief supervisor to succeed **J. W. Woody,** resigned. **Ray McDermid,** formerly reservations supervisor at Atlanta, has taken over the Jackson position, and **Dave Garrett,** reservations control supervisor, has transferred to Atlanta reservations.

Courtesy, Service Pay Off at El Paso

. . . 'MUST' STOP FOR TRANSIENT PILOTS

IF YOU want an A-1 example of an airport that turns courtesy and service into profits, take a look at El Paso International Airport in the far western corner of Texas.

When Charles B. Moore became manager in September, 1949, he started a hospitality plan that has worked wonders. Transient flyers make El Paso a "must." El Paso's citizens have been made fully aware of their investment in their airport. And airline passengers always find a warm welcome with excellent coffee shop, gift shops—and plenty of space to move around in. The pueblo-style architecture of the terminal has made El Paso one of the most attractive terminals in the U. S.

Equipped with full CAA facilities, including the largest weather bureau between Fort Worth and Los Angeles, El Paso International has 400 takeoffs per day on the average. Four 7,000-foot runways, 150 feet wide, criss-cross a landing area of just under 2,000 acres. Planes up to 300,000 lbs. can land in any portion of the field. Five airlines serve the airport.

Caters to Private Planes

But it is the private plane which is mainly responsible for El Paso's growth and profits. Every arriving airplane is met by Moore or one of his two assistants—Joe R. Watts (who ran a super-service gas station before joining the airport staff) and Bob McDonald. Service crews are on duty 24 hours a day. A porter

They Run It— Management of El Paso International Airport rests largely with, left to right: Joe R. Watts, assistant manager; Charles B. Moore, manager; Robert C. McDonald, administrative assistant.

enters the ship and vacuums the interior, empties ash trays and cleans the windows, inside and out. In the summer a portable air-conditioning unit is attached to all executive-type airplanes—a deluxe service not found anywhere else. In the winter the unit supplies heat.

While the plane is being serviced, the pilot and his passengers are taken to the airport's smartly-decorated restaurant, operated by Skychefs. Hotel reservations are made if required and transportation furnished to town.

But no pilot ever stops at El Paso without receiving in a few weeks a "thank you" card from Moore asking him to stop by again. El Paso has received plenty of commendatory letters from transient patrons. A card file is maintained so repeaters can be given special welcome.

At the moment a new crash truck station with its own lookout tower is being built adjacent to the terminal building. The station will house the equipment of the crash crew and also provide shelter for refueling trucks.

Two Big Operators

Planes of less than 7,000 lbs. weight are directed to Champ's Flying Service or Southwest Air Rangers, the two big local operators on the field. The airport re-sells gas to the operators who, incidentally, have been doing quite well. Gas available is 91-98, and 100-130 octane. The airport has an underground storage tank holding 63,000 gallons.

In the first 11 months of this year, gasoline sales totaled 1,292,004 gallons, and the airport expects to pass the million and a half mark for the year—not including gasoline sold to transient military aircraft. The airport has been designated as a "P" refueling station and recently was awarded a contract by Air Materiel Command to service military aircraft.

Moore has encouraged civic activity

Service Area— Numerous types of personal and executive planes pictured here attest to the excellent service owners of such planes find at El Paso International Airport. Two big local operators on the field stay busy pretty much of the time catering to the needs of transients, many of whom make it a point to include El Paso on their itineraries when flying out in that part of the country.

Waiting Room— The Western motif is much in evidence in architectural design and decorations of the passenger lobby of the terminal building at El Paso International Airport. Note steer head mounted on balcony railing at upper left, painting of roundup scene on right wall and native wood rails, beams and studs.

Here's the Evidence:

El Paso International's Profit Statement

	Month of October		Eight Months March-October	
Fuel Sales	$41,573.18		$246,643.46	
Less: Cost of Sales	31,277.04		190.560.00	
Gross Profits on Sales		$10,296.14		$56,083.46
Other Revenues:				
Rents—Adm. Bldg.	$ 3,115.27		$ 24,167.50	
Hangars	2,052.20		15,991.77	
Operating Fees	158.33		1,766.65	
Landing Fees	1,342.00		10,269.00	
Others: Commissions	1.539.08		4,190.47	
Miscellaneous	1,821.18		12,685.30	
Total Other Revenues		$10.028.06		$69,070.69
Gross Profit on Operations		$20.324.20		$125,154.15
Operating Expenditures				
Salaries	$ 5,260.92		$ 40,173.78	
Utilities	1,691.51		11,496.01	
Supplies & Repairs	716.99		9,089.67	
Insurance	.....		160.11	
Management & Travel	826.59		2,053.98	
Car Allowance & Equipment	162.68		1,414.03	
Total Operating Expenditures		$ 8,658.69		$64,387.58
Net Operating Profit		$11,665.51		$60,766.57
Other Charges				
Discount Given			$ 391.75	
Bad Debts Charged Off			3.11	
Total Other Charges				394.86
Net Profit		**$11,665.51**		**$60,371.71**

Note: Depreciation is taken at the rate of $6,989.91 each month, a total of $55,952.92 for the eight months period, which is returned to the General Fund of the City of El Paso and is used in part to pay salaries and expenses of the airport and other departments.

at the airport. Up to the end of July, 20,000 children from schools within a radius of several hundred miles of El Paso were taken on daily tours of the field. Each child is given a souvenir of the airport including airline baggage labels. Two fixed base operators have a $1.50 charge for a 20-minute sightseeing flight, and Pioneer Air Lines has conducted numerous $3.00 local flights. Many people from in town are now patronizing the restaurant.

Airport of Entry

The airport is port of entry for air traffic in and out of Mexico, across the Rio Grande from Juarez. Working quarters for customs and immigration officials are ample and well arranged and passengers are not jammed into small quarters as they are at some other ports of entries.

Moore was a representative of the Sheriff's Association before taking over the airport management. He is public relations minded and believes his hospitality plan has paid dividends. The profit statement for the airport would seem to justify his faith. Of the 365 persons employed on the airport, 22 are on the payroll of the city airport staff, the others employed by airlines, operators and concessions.

AIRPORT PEOPLE

Howard L. Richards, manager of the the Gardner (Mass.) Airport for the past three years, has resigned to accept a position with Pratt & Whitney Aircraft in Hartford.

M. E. Sheffield, formerly city airport engineer, has been appointed to succeed the late **Col. Charles G. Pearcy** as city aviation director and manager of Laredo (Tex.) Municipal Airport.

J. B. Thompson has been named manager of the county airport at Lufkin, Texas, where he formerly was assistant manager for several years.

E. R. Shimp has been appointed manager of Kirsch Municipal Airport at Sturgis, Mich.

Bill Eckenrod, of Chattanooga, is the new president of the Southeastern Airport Managers Association, succeeding **J. H. Manning** of Augusta, Ga. Other new officials are: **E. E. Bentley,** Jacksonville, vice president, and **E. A. Anthony,** Myrtle Beach, secretary-treasurer.

R. Ancel Palmer, chief agent for American Airlines at Will Rogers Field, Oklahoma City, until six months ago, has been named assistant manager of the All Valley Airport at Harlingen, Texas. **Harvey Richards** and **Ted McDonald,** of the Harlingen Airport Board, will act as co-managers.

Baltimore May Abandon Former Municipal Airport

Harbor Field, Baltimore's former municipal airport, may be abandoned after December 31, 1952, the date when all contractual obligations to tenants at the field will have been terminated.

Two factors bearing on the matter are: (1) The effect Washington's proposed second major airport may have upon aviation activities at Baltimore's new Friendship International Airport, and (2) the effect the acquisition of jet aircraft by the Maryland National Guard might have upon the Guard's continued use of Harbor Field.

CAA AIRPORT GRANTS

For the two weeks ended December 8, the Civil Aeronautics Administration made Federal-aid airport grant offers totaling $2,356,515 to 29 communities, as follows, with airport classes in parentheses:

Arizona: Flagstaff Municipal (3), $25,184 (two offers); Prescott Mun. (4), $10,767.

California: Oakland Mun. (5), $10,291.

Colorado: Peterson Field, Colorado Springs (6), $3,500.

Louisiana: Harding Field, Baton Rouge (5), $29,500.

Massachusetts: Nantucket Memorial Airport (3), $50,000.

Minnesota: Mora Mun. (1), $15,000.

Mississippi: Vicksburg Mun. (3), $7,500.

Missouri: Kansas City Mun. (6), $619,100.

Nebraska: Fairbury Mun. (2), $2,250; Grand Island Mun. (6), $4,834; Ord Mun. (1), $6,000.

Nevada: Yerrington Mun. (2), $10,088.

New Jersey: Millville Mun. (4), $11,934.

New Mexico: Lea County Airport, Hobbs (4), $33,930.

Ohio: Richmond Road Airport, Cleveland (2), $50,500.

Pennsylvania: Chess Lamberton Airport, Franklin (2), $107,500.

South Carolina: Greenwood Co. Airport (4), $5,400.

South Dakota: Hot Springs Mun. (3), $13,240.

Tennessee: McGhee-Tyson, Knoxville (4), $200,000.

Texas: Hutchinson Co. Airport, Borger (2), $8,000; Ft. Worth International (5), $817,500 (two offers).

Vermont: Burlington Mun. (4), $10,000.

Virgin Islands: Harry S. Truman Airport, St. Thomas (3), $25,200.

Washington: Bellingham (4), $14,566; Forth Port (1), $6,675.

West Virginia: Tri-State Airport, Huntington (4), $190,000.

Wisconsin: La Crosse Mun. (4), $66,792.

Wyoming: Douglas Mun. (2), $1,264.

These boosted to 1,619 the number of grant offers made under the Federal Airport Program and increased to $133,617,251 the amount of Federal funds involved.

AIRPORT NEWS DIGEST

Cost Rise Hits Airports: Airport people, both at the local level and at the CAA headquarters level, are much concerned over the effect rising construction costs will have on airport improvements, principally new terminal buildings. The situation already is bad, and it doubtless will become critical as the impact of near-mobilization forces prices upward.

San Francisco discovered not long ago that what had been approved as a $4,500,000 airport administration building had become a $7,000,000-plus project, and the plans had to be redrawn with many features of the original design omitted. Terre Haute had a like experience. Lowest bid received on a new terminal for Hulman Field was $450,000, and city had only $200,000 available, including Federal-aid funds. Project had to be readvertised with plans substantially modified.

Same thing is happening at numerous other airports, not only with regard to new buildings but also in runway construction and other improvements. Complicating the picture is the $15,000,000 cut the Budget Bureau made in CAA's Federal Airport Program funds for fiscal 1951, for this means that cities will receive less money from CAA at a time when higher costs dictate the need for more funds. Available sponsors' funds in most cases are restricted to sums set up in the city budget or to bond funds of a set amount.

Net result of this is that even if concrete, steel, brick and other materials are still available for airport projects in 1951, which is by no means certain in all cases, material and labor costs are likely to be such that many projects dear the hearts of airport people are either going to have to be scrapped entirely, deferred indefinitely or modified and altered almost beyond recognition. It certainly means fewer frills in terminal buildings and fewer features such as two-level traffic.

Military-Civil Use: The airports task group of the National Security Resources Board completed its survey of a number of key terminal airports December 15 and will make its report shortly after the first of the year as to the extent to which military and civil air activity might be mixed at these fields and what physical improvements will have to be made to the airports to enable them to accommodate more military flying.

Meanwhile, CAA officials, including **Phillips Moore,** director of the Office of Airports, are hopeful that the surveyed airports and other existing fields will suffice to handle nearly all of the increased military activity resulting from the present emergency. But if it becomes necessary to build any new military airfields, CAA is going to use all its influence to persuade the Department of Defense not to build them "twenty miles from nowhere," simply because land is cheaper out in the hinterlands. CAA wants any new military fields to be located where they can be advantageously used by some city if real peace ever comes again.

PLANNING

• **Plans and specifications** for a $235,000 expansion and modernization project for Boise's municipal air terminal have been sent to CAA.

• **The Maine Governor's Council** has authorized the State Aeronautics Commission to borrow $15,000 from the Federal government to pay the cost of planning an airport at Augusta.

PAVING & GRADING

• **CAA engineers have formally accepted** the two 5,000-foot runways at the Broome County Airport near Binghamton, N. Y.

• **City of Flagstaff, Ariz.,** has asked the Army Engineer Corps for a grant of $325,000 for improving the municipal airport so as to make it more suitable for military use. Improvements would include a 1,700-foot runway extension.

TERMINALS

• **Two bids submitted for construction** of the administration building at the new airport at McAlester, Okla., had to be turned down by the city because they were too high. Plans will be revised and bids readvertised.

—KEITH SAUNDERS

States Get EAC Blueprint For Civil Aviation in Defense

By BARBARA J. WARD

WITH the declaration of a national emergency by President Truman, fixed base operators are realizing they will have to move fast to catch up with events. Whether or not they will keep flying if the "emergency" advances to its next logical status depends on whether they have established essential missions.

The latest development concerning civil aviation is the result of industry rather than government action. The "State Plan for Civil Aviation in Civil Defense" was sparked by the National Association of State Aviation Officials and drawn up by the 13 national aviation associations which comprise the Emergency Aviation Council.

Representing the thinking of such organizations as NASAO, National Aviation Trades Assn., American Association of Airport Executives, National Flying Farmers Assn., National Aeronautic Association and Aircraft Owners and Pilots Association, it is now in the hands of all state aviation officials with the recommendation that it be used as a blueprint and put into effect at once.

Structure for NSRB Plan

While state organizations are being established, work continues in the National Security and Resources Board task force committees. These committees are working on recommendations for maximum defense utilization of civil aviation facilities—training, maintenance and transportation—with the target date of January 15. This date probably will have to be extended but, when recommendations are forthcoming, the structure for carrying them out within the states will be ready.

Under the new plan, a state chief of aviation for civil defense (see chart) will be appointed by the governor or the state civil defense director. He will obtain the services of an aviation advisory council, representing "all phases of aviation and all sections of the state." Presumably, organizations such as NATA, AOPA, etc., will be represented on state councils, although one loophole in the plan is that such representation is not spelled out and the council members could become strictly political appointments.

County chiefs of aviation for civil defense are to be appointed by the state chief, with the advice of his advisory council. The county chiefs will in turn obtain county advisory councils, with the advice of the aviation industry. It is stipulated that one member of each county council shall be an official of the Civil Air Patrol. And any county chief or member of a county aviation advisory council may be replaced by the state chief with the concurrence of his council.

State Chief's Duties

The state chief and his council have the following assigned duties:

- Compile a record of aviation facilities and personnel;
- Prepare an analysis of air lift available in the state for reconnaissance, aerial public address, ambulance, etc.;
- Plan a system of communication links between the civil defense radio net, control airports and aircraft engaged in defense missions;
- Mobilize and direct facilities when so directed by the state defense director; and
- Plan and direct practice missions.

The county chiefs and councils are to prepare and maintain on approved forms in cooperation with airport managers the records of aviation facilities and airmen, which information will be transmitted to county defense directors and the state chief of aviation; keep a running check on available landing areas; and mobilize and direct civil aviation activities.

Operational procedures of the plan follow the general outline recommended in the ADAC report (AMERICAN AVIATION, Sept. 18, p. 65). Condition one, "national emergency anticipated," already was in the past when the plan reached the state aviation officials. Condition two, "national emergency declared," is with us now, with condition three, "war or enemy attack," to prepare against.

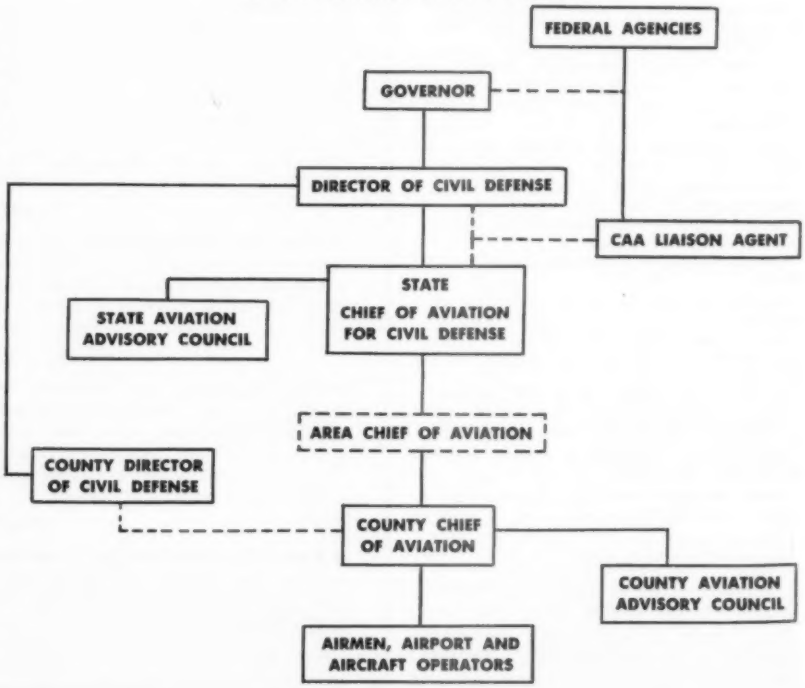
Control Airport Needs

Control airports will act as identification and clearance centers for aircraft and airmen and must meet the following prerequisites: telephone, office for records and display of notices; qualified airport personnel who meet security requirements, and radio facilities to monitor the nearest CAA communication station. The plan states that all airports meeting the criteria for control airports should be granted such designation on application.

But, aside from the suggestions that

State Organization Chart

For Civil Aviation in Civil Defense



operators plan to meet the requirements for control airports, "encourage adequate maintenance" and "encourage training and practice in navigation," etc., the fixed base operator still has no concrete outline of what he can do at the bottom of this contemplated structure now.

Here are some ideas from government sources as to what can be done now at local airports:

- **Call a meeting of airplane owners** and pilots, mechanics, radio operators and navigators no matter how small your airport is or how few they may be.
- **Elect a director for the defense unit,** who will register all members of the group and supervise activities until an active state unit is formed.
- **Hold regular meetings to plan activities,** including disaster practice missions and public demonstrations attended by civil defense agencies such as Red Cross, police, fire department, working press, etc.
- **Hold night study courses** for all unit members to strengthen their effectiveness. Aviation subjects, navigation, new radio aids such as the omnirange, search and rescue procedures, radio and flight plan procedures, atomic bombing effects, first aid, etc., are suggested.
- **See that members have current physicals** and FCC radiotelephone licenses.
- **Prepare a complete inventory of planes,** personnel and facilities. Determine the type of missions that might be needed in the area and coordinate work through CAA with other defense units and state agencies as they are established.
- **Plan to equip and guard your field** so that armed guards with police power can take over at once if needed.

CAA Specification Changes

Luscombe 8 series is approved with corrosion proofing and elevator tab, dwg. 58700, change F, by Specification A-694.

Aeronca 7AC series is approved with crop spraying installation of Independent Crop Dusting, Inc., Campbell, Cal., by Specification A-759.

Piper PA-18 aircraft are approved with installation of the 125-hp. Lycoming 0-290-D engine, by Specification 1A2.

Mooney M-18 aircraft are approved with six-gallon auxiliary fuel tank, by Specification A-803.

Bellanca 14-19 aircraft are approved with Goodrich 605 MD main wheel-brake assemblies, 6-ply Type III main wheel tires, and Firestone Model 206-8B and Maule Model 8FS-12 swivel tail-wheel assemblies, by Specification No. 1A3.

Beech 35 Bonanza is approved for Lear 1-2 electropilot installation with required placard stating, "Do not use autopilot below 300 feet above terrain except during takeoff, approach or landing when autopilot not to be used below 100 feet above terrain." Specification No. A-777.

THE Washington View

By Barbara Ward

WITH THE 81st Congress in its dying days and the Korean situation back-firing, the **Civilian Airman Training Act of 1950** stands no chance of coming to a vote. However, plans are under way to re-introduce the legislation in the next session of Congress and it may well pass to provide for training civilian pilots and technicians in "CPT" type courses.

Aside from aviation's need for youth, there is another serious aspect. The 48 states are now creating civil aviation defense organizations for use of a civilian fleet of over 60,000 active lightplanes in the event of a war. With these aircraft, transportation and assistance could be brought close to any bombing scene. But with draft calls raised to 80,000 in both January and February, the young men who ordinarily would be learning to fly at the small airports will be studying for Uncle Sam. And, unless some business provision is made for local airports in the mobilization economy, the airports which will be needed in an emergency will be out of business and closed in another few months.

•

Contrary to reports that CAB has a present plan to permit fixed base operators to run scheduled "small-town airline" service with single-engine planes between towns not served by airlines, no formal proposals of this type are under consideration. At present, Central Airlines, of Ft. Worth, Texas, and Midwest Airlines, of Omaha, Nebraska, are the only two scheduled passenger carriers using single-engine aircraft. There are approximately 2,400 small irregular carriers and 77 large irregular carriers, but prospects of a blanket approval for scheduled single-engine operations by all operators are decidedly slim.

•

Operators interested in providing lightplane air taxi service between local communities and airline stops should get in touch with president **Joe Garside** of the National Air Taxi Conference, Box 179, Norwood, Mass. For the first time in U. S. aviation history, a formal working agreement is being signed between airlines and fixed base operators. Operators will handle airline reservations at their expense from outlying communities and in turn, the airlines will arrange for air taxi connections with incoming flights and collect a $10 deposit from each passenger for the operator.

The final interline agreement will become effective January 10, 1951, but operators should have their names in by January 5 as, on that date, Garside has to furnish the names to the airlines. So far, the following airlines have signed the agreement: **American, Eastern, Capital, Piedmont, Pioneer, Southern, Western, Inland** and **Wisconsin-Central.** However, all airlines probably will sign the agreement as it already has the approval of their Air Traffic Conference representatives.

•

The public air raid warning signals to be used by all states and cities in the event of enemy attack have been announced by Federal Civil Defense Administrator Willard Caldwell. Effective now, the "red alert" warning signal will be fluctuating or warbling signals of varying pitch by sirens, lasting three minutes. The "all clear" signal will be a series of three steady one-minute blasts by sirens, horns or whistles, interrupted by silent periods of two minutes each.

•

We're glad to hear the **Jamieson Aircraft Co.,** DeLand, Fla., is back at work on the Jupiter lightplane after a reorganization in which Vice President **Ross Holdeman** left the company. The Jupiter has started its flight tests for CAA type certification and we hear the company will try to sell the plane to the Army for use as a radio-controlled target plane. The Jupiter's present status approximates that of the Culver Cadet, which was a fairly new lightplane at the start of World War II and became the most widely used radio-controlled or "drone" plane. **C. M. Jamieson,** president and chief engineer of the company, also was chief engineer of the company which built the Culver Cadet.

Cross-Country

WITH LOCAL OPERATORS

By Page Shamburger

GEORGIA—Amazing things you'll see at an airport! In one of the concrete runways at **Savannah Municipal** . . . two graves, headstones and all! **Frank Le Hardy**, manager, told me when the Army was constructing, this runway overtook a cemetery, and the family decided they did not want the bodies moved. Thought it held up proceedings for three months; there are two graves in a runway and two in a taxi strip.

Le Hardy

Speaking of Savannah, the confusion of who's where has finally subsided. The Second Bomber Wing moved from Chatham Air Base to Hunter Field and Savannah Municipal operations were moved to the old Chatham, now called Travis Field. Operations began at Travis on September 30, and as the Army doesn't beg for private planes on Hunter, please note!

Tony Hurd, who has been flying since 1929, is operating **Pleasure Crafts, Inc.** and says business is improving. Actually he says, it couldn't be any worse, so it must be improving. He has 19 privately owned planes based with him and thinks transient trade good. Tony gives excellent service and knows more about flying in Georgia than Georgia does.

Ed Jungeman is doing some work for the ground forces. His operation, **Airflight, Inc.**, is ideally located . . . just below the tower on Travis.

Augusta Municipal (Bush Field), Ga., has no operators, . . . fact is, the only operator in that whole section is **Buster Boshears**. Buster makes up for the shortage in operators, though, by giving excellent service and complete repair work. His **Augusta School of Aeronautics** is located on Daniel Field, also a municipal field. Buster and his brother Forest deserve a lot of credit for the foresight of combining crop dusting, banner towing, power-line patrolling, and aerial photography with the usual school activities. They'll stay in business! Met here one whom I believe is the youngest solo student continuing to fly. Name is Lee and he soloed at 11!

Grave in airport runway, Savannah Municipal Airport, Ga.

S. W. White, Okefenokee Flying Service on Ware County Airport, Waycross,

Mr. and Mrs. S. W. White, Okefenokee Flying Service, Ware County Airport, Waycross, Ga.

has averaged 30 GI's all summer! He says he's got as many as his equipment can handle. (From what I hear, there's only one operator in the state with more GI's.) All the credit, he says goes to hard work and just plain persistence. He and his wife have clean operations . . . even to a snack bar.

Bill Hall has as backbone of his **Albany Air Service**—PAPER DELIVERIES. No, he doesn't ride a bicycle, he flies a T-Craft. Two T-Crafts and a Pacer deliver approximately 4,700 newspapers to 61 towns every afternoon. Bill said the largest sized headache came from the experimenting on the bundles. Now, 12 inches of newspapers are held together with two rubber bands cut from innertubes and stuffed into GI laundry bags. Before this perfection, I understand the Albany newspapers were spread all over the county.

These air delivery boys have several single door subscribers, nothing less. Hats off to James Gray, newspaper editor with an eye to the future and to Bill Hall manager and operator who's *working* at this job of making a living out of flying.

W. H. Barron, Dublin Municipal Airport, Ga.

Dublin Municipal can boast a *real* operator in **W. H. Barron.** Bud has been flying commercially for over 15 years and really knows the game! He says he has flying in his blood and though the going is exceedingly tough now, he's still got blood and will stick with it.

Well, **Ralph Kiker** at **Souther Airport** in **Americus** has the most unusual combination occupation with a flying service. He's the town's only gunsmith. Says it works out swell, too. Guns have a season, when the quail fly . . . and that's when the pilots don't, so, that do make it nice.

Dean, Jack, and Rachel are the flying **Kings** operating **Columbus Municipal**, and what a shock, they have a waiting list of students on the weekends! Reason? Good operation and excellent location. Columbus Municipal is right on the only road from Fort Benning to the city . . . and when those soldiers see airplanes, they've got the bug. Result: the Kings have business.

Jim Lowe, manager of **Lowe Aviation, Cochran Municipal Airport**, Macon, is in the surplus parts business. He has all sorts of parts. Lowe's flight operations is managed by **Arthur Lee Arnold**, a friendly fellow with an eye to service. Besides the usual instruction, sales and service, Lowe is patrolling forests and power lines.

Bob King on **Herbert Smart Field** in **Macon** got the he-haw two years ago when he brought the first liquid sprayer into the state of Georgia. Funny, isn't it, now that they all have liquid sprayers! Bob's been doing a lot of dusting, liquid fertilizing and the latest . . . defoliating (taking the leaves off.) His motto . . . *"When the Bugs Begin to Bite Let Us Spray."*

Lear Lightplane Autopilot Cuts Cross-Country Fatigue

The F-5 jet plane autopilot which won the Collier Trophy for William P. Lear, founder of Lear, Inc., Grand Rapids, Mich., may, incidentally, bring about a new concept of private flying.

Developed for the Air Force and already in production, the F-5 is the first approved autopilot to combine lightweight and compact size with the sensitivity required to meet the high speed and maneuverability demands of jet aircraft.

Not only will it take over the controls on a cross-country flight to hold the plane steady at a set heading and attitude but, by use of an approach coupler to the ILS beam, it will guide the jet down to the runway in instrument weather. It enables jet planes with limited fuel capacity to carry out all-weather operations.

Sees Unmanned Fighters

Lear, who believes that men will be eliminated from future fighter-plane interceptors, predicts, "In my lifetime I expect to be working on pilotless fighter planes, flown in satellite formation from a mother ship. The human pilot in the mother ship will bring the satellites within range of the enemy—and then take off. The satellites will track down the enemy and fight him to destruction with completely automatic controls."

Already, the F-5 is being used in experiments with "drone" aircraft controlled from the ground by means of manual stick and rudder controls and capable of being switched to automatic pilot.

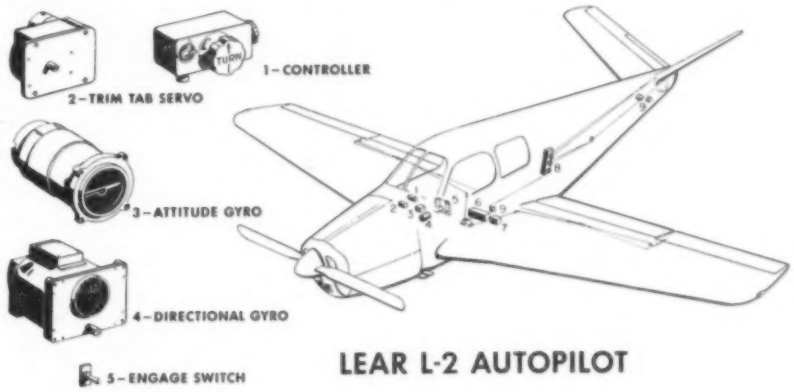
While details of the F-5 military autopilot are classified, Air Force representatives admit that it is essentially the same piece of equipment as the new Lear L-2 autopilot for lightplanes. And, in a different way, the L-2 may change the private flying picture as drastically as its military counterpart affects strategic operations. Not by eliminating the private pilot—but by taking the work out of flying.

Fatigue Factor

Lear has said that the biggest obstacle to a man's using his plane for travel in his work day by day is that extra two ounces of pressure required on the controls. On long cross-country flights, the need to hold the plane to its heading and stay on the controls in rough air adds up to weariness.

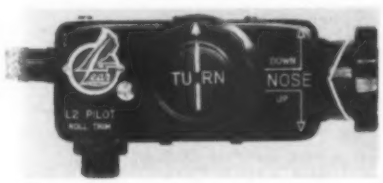
Lear has built slip clutches into the servos which allows the pilot to overpower the autopilot.

The cost is high at first glance—$2,990 for the autopilot, not counting cost of installation. But spread out over a ten-year period (and with maintenance the autopilot should outlast the plane), the price adds up to only $25 per month.



LEAR L-2 AUTOPILOT

AUTOPILOT parts total about 30 pounds, or the equivalent of six gallons of gas. If aircraft already has directional and horizon gyros, added weight will be even less.



CONTROLS of the L-2 autopilot are simple. To climb, roll the pitch knob backward; to descend, roll it forward; to turn, rotate the turn knob in the desired direction. Turn is stopped by moving the knob back to neutral.

the bulletin board

Undisplayed Advertising: $1.00 per line, minimum charge $4.00. Cash with order. Estimate 30 capital letters and spaces per line; 40 small lower-case letters and spaces per line. Add two lines if Box Number is included in lieu of advertiser's name and address.

Displayed Advertising: $10.00 per inch for less than 15 inches in one issue or in any 12-month period. For more than 15 inches, $8.50 per inch; more than 30 inches, $8.00; more than 60 inches, $7.50; more than 90 inches, $7.00; more than 120 inches, $6.50. Space units up to full pages accepted in this section for classified-type advertising.

Forms close 20 days preceding publication date. Address all correspondence to Classified Advertising Department, AMERICAN AVIATION PUBLICATIONS, 1025 Vermont Ave., N. W., Washington 5, D. C.

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WINGS OF YESTERDAY

25 Years Ago

Col. William Mitchell, who was tried by court martial for his accusations against the officers in control of the War and Navy Departments, was adjudged guilty and was suspended from the Army for a period of five years.

•

On December 16, 1925, the Senate passed the bill introduced by Senator Hiram Bingham of Connecticut providing for the appointment of an Assistant Secretary of Commerce who would be charged with the encouragement and regulation of air navigation and also for the inspection and regulation of all pilots and aircraft.

•

Walter T. Varney, who was awarded the air mail route between Elko, Nev., and Paso, Wash., ordered nine planes especially for air mail use from The Swallow Airplane Manufacturing Co. of Wichita, Kansas.

10 Years Ago

(In American Aviation)

Opening of New York City's $5,000,000 Airlines Terminal at Park Avenue and 42nd Street was to be held January 9, 1941.

•

CAA announced a list of 200 airports to be built or improved under the $40 million appropriation passed two months earlier by Congress. Airports in Alaska and Hawaii were included in the program.

•

CAB approved the purchase of Marquette Airlines by TWA. Marquette's route extended from Detroit to St. Louis.

BOOKS

AMERICAN EXPRESS, by Alden Hatch. Published by Doubleday & Co., New York. 286 pp. Illust. $3.50.

This is the story of the origin and growth of the great world-wide American Express organization, published appropriately on its 100th anniversary. Aviation comes into the history but slightly, although anyone connected with any form of transportation will find the Amex history fascinating to read.

AIRCRAFT PROPULSION POWERPLANTS, by Lawrence T. Cargnino and Clifford H. Karvinen. Published by Educational Publishers, Inc., 122 North 7th St., St. Louis 1, Mo. 590 pages, illustrated. Price: $6.50.

This is a well prepared text on aircraft engines and propellers. Contrary to the general run of books on this subject, it is not a simple copy of previous government publications or factory handouts. The book can be recommended to anyone interested in the subject of reciprocating or turbine engines. Coverage of the reciprocating engine is understandably given a large percentage of the space but data relating to turbines have been reduced to simple terms in a worthwhile manner.

At this date coverage of piston engines for the aircraft mechanic, pilot and student engineer, is quite standardized. The authors follow the usual pattern of breaking the book into major systems: carburetion, electricity, controls, propellers, lubricants and lubrication systems, etc. But in each section one finds originality in the manner of treatment.

It appears that with the turbine engine the pattern has not yet been formed. A decision has yet to be reached as to what the same group of people need know about this class of engines. Yet the authors have created a useful grouping of material which may set the future pattern.

STRENGTH OF STAINLESS STEEL STRUCTURAL MEMBERS AS FUNCTION OF DESIGN, by Michael Watter and Rush A. Lincoln. Published by Allegheny Ludlum Steel Corp., Pittsburgh, Pa. 151 pages, illustrated. Price: $5.

This volume is made up largely of detailed, full-page graphs relating to the properties of stainless steel, in various degrees of hardness and treatment, to all types of stresses. Most of the information was compiled by Dr. Watter and members of the Research and Development Department of The Budd Company, manufacturers of the stainless steel Budd transport aircraft.

SNOW MELTING, by T. Napier Adlam. Published by The Industrial Press, 148 Lafayette Street, New York 13, N. Y. 224 pages, illustrated. Price: $4.50.

Snow Melting is primarily aimed at methods of removing snow from highways, sidewalks and other industrial uses by melting but not directly aimed at airports. In this well illustrated and informative volume, the author of "Radiant Heating," provides considerable data on what has come to be a controversial subject for those interested in airport snow removal.

After discussing the general possibilities of removing snow by melting, the author provides some 27 full-page working charts indicating considerations which must be taken in designing systems. Chapters are devoted to snow melting test data and test set-ups, means of calculating heat required, antifreeze solutions and their use in such systems, costs of operation, and design procedures.

In a field where much remains to be discovered, Adlam has compiled a book which should prove of interest. While not specifically applicable in detail to runway problems, many of the airports areas do come within its scope and by implication the runway considerations are apparent.

A MANUAL OF PLASTICS AND RESINS IN ENCYCLOPEDIA FORM, edited by William Schack. Published by The Chemical Publishing Co., Inc., 26 Court St., Brooklyn 2, N. Y. 547 pages, illustrated. Price: $10.

As indicated in the title, this book is in encyclopedia form. It touches on some 1,500 subjects in the plastics field, some lightly, others in great detail. Alphabetical listing is provided which effectively brings the engineer to the pertinent data in a minimum of time. By incorporating both full length articles and short stories by many prominent people in the plastics and allied industries, the editor has made the volume one which will be used repeatedly for source material.

TECHNICAL LITERATURE

PALMETTO PACKINGS: Greene, Tweed & Co., North Wales, Pa., has issued a 20-page illustrated catalog consolidating material on Palmetto Packings. Includes tables of sizes, weights, lengths, packaging, etc.

TIN-ZINC PLATING: Metal & Thermit Corp., 100 East 42nd St., New York 17, N. Y., is distributing a data sheet on the tin-zinc plating process.

ZINCILATE: Industrial Metal Protectives, Inc., 401 Homestead Ave., Dayton 8, Ohio, has available an eight-page illustrated bulletin describing Zincilate, a one-coat, self-protecting, anti-corrosion coating. Presents case histories and complete specifications.

TOOL PLASTIC: Rezolin, Inc., 4825 W. Jefferson Blvd., Los Angeles, Calif., is circulating a bulletin titled "3000 Tool-Plastic." It describes a liquid phenolic casting resin for economical production or duplication of tools and models.

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IN FLIGHT

A PAGE FOR ALL PILOTS

Kelly Two Now No. 1

Fred Kelly Two is now Fred Kelly One. But he is still Fred Kelly Two.

This double-talk comes out like this:

The first pilot hired by Western Air Express, now Western Air Lines, back in 1926 was **Fred Kelly.** Another pilot named **Fred Kelly** joined WAL in 1929—so for purposes of distinction they became Kelly One and Kelly Two, and that is the way they have been known for years. Still are.

Earlier this year, Kelly One went on leave of absence from the airline to go to Jackson, Wyo., to regain his health (AMERICAN AVIATION, Oct. 16, page 60). That made **Capt. Art Stephenson,** who came into WAL via the old National Parks Airways, No. 1 on the airline's pilot seniority list.

But the other day Stephenson went on leave also; to go to Alaska to lend a hand to **Bob Reeve** in the operation of Reeve Aleutian Airways. That moved Kelly Two up to No. 1 active-duty pilot.

Kelly Two is a veteran of both world wars. He joined the U. S. Air Corps on January 9, 1918, and remained in the service until he joined WAL on December 12, 1928. He went on military leave on May 31, 1942, to serve with the Special Missions Squadron of the Air Transport Command. He left the service with the reserve rank of lieutenant colonel and rejoined WAL on January 16, 1946. He recently logged his 25,000th hour in the air.

—F. S. H.

Restricted Zone Violations

Pilots are being reminded by CAA Administrator Donald W. Nyrop that recent flight violations of atomic energy areas at Oak Ridge, Tenn., Los Alamos, N. M., and Hanford, Wash., can no longer be tolerated. New charts showing the areas have been printed and will be distributed to all civil airports by CAA. Nyrop states that the majority of flights into the prohibited areas are the result of careless flight planning or poor navigation, both of which can be corrected by the pilot himself.

Crew Stations—Aircrews of the coming range of transonic bombers are grouped closely together as shown in this Boeing B-47 instead of scattered about the structure. This makes for easier pressurization. The Germans established that the crew fighting back-to-back, as it were, have much greater morale. Defensive armament is being reduced and bombers tend to rely on their speed for defense.

Classified Supersonic Museum-Piece

The historic Bell X-1 which first passed the speed of sound now reposes with a red paint job in the Smithsonian Museum, yet (like the adjacent Norden bombsight which was used to aim the first atomic bomb) many aspects of its design are still confidential. Opinion seems to be clear that the greatest speed reached without the turbine-pump is about 960 mph at 53,000 feet (Mach 1.46) which lines up with the official statement that it has flown hundreds of miles per hour faster than the speed of sound.

Captain Charles Yaeger took the trials in his stride (what a unique opportunity Chalmers Goodlin missed by throwing up the work on the reported grounds of how much his remuneration would be subject to income tax). Yaeger made three familiarization flights, dropped from the B-29 mother-ship, before he turned on the rocket tubes one by one.

He tried a slow roll with all four on, but by venting the propellant lines the flames went out. Starting or stopping the tubes must be done individually to avoid propellant hammer and hydraulic surging, thus full power with all four tubes is a matter of seconds. It is regarded as better practice to shut down all the tubes before the fuel is entirely exhausted and jettison the remaining quantity, one propellant at a time.

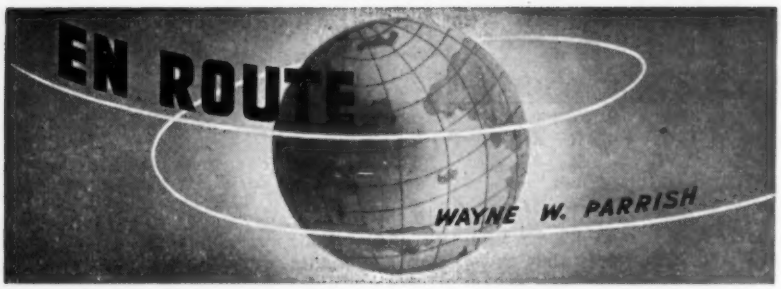
Reports mention that the changes in longitudinal trim are comparatively small in the sonic region and the airplane is always controllable. This makes an interesting contrast with de Havilland's D.H. 108 which according to Test Pilot John Derry is controllable up to Mach .98. The only known supersonic flight by an aircraft of foreign design was a single dash by Derry when he reached M .98 in such a position that the airplane went on by itself to reach Mach 1.07 which represented a speed of about 680 mph. The difficulties of fore and aft control in this design probably apply to greater or less degree to all tailless aircraft like the Chance-Vought XF7U-1 Cutlass which have a short arm with consequent lack of leverage. Derry regained control of the D.H. 108 at a lower altitude when the warmer conditions made the speed of sound recede.

The Bell X-2 resembles the X-1 in many respects except that it has a pilot canopy somewhat similar to the D-558-2, a stainless-steel construction with an ultimate design factor possibly higher than the 18 of the X-1, and swept surfaces.

—R. G. W.

Witch Type?

Beulah the Witch, aviation-minded member of the "Kukla, Fran and Ollie" television show, has received a letter from the CAA office at O'Hare Field, Chicago, Ill., asking if she would be interested in obtaining one of the new wallet-size pilot licenses. Beulah did not commit herself but people are curious as to what her CAA rating would be.



Xmas Roundup. The year 1950 is coming rapidly to a close and my air travels won't even hit 70,000 miles compared to that 99,000-mile total in 1949. But I've been to South America once and to Europe three times plus a lot of rambling around good old U.S.A., so I can't complain. And when you read this I'll be in Hawaii on the way to the Far East.

The most frustrating feature of this fast air traveling is that I meet so many people and am never able to mention them all on this page. So this Christmas page is to say Merry Christmas and thanks to a lot of people who have done some very nice things for me in 1950.

'Way last February I snuck down to St. Croix Island in the Virgin Islands for a brief sunny vacation and it was made especially enjoyable by such good Joes as **Rog** (PAA) **Wolin** of Miami; **Jim Crawford**, PAA's agent on St. Croix, the wonderfully informal Buccaneer Hotel there, and three fine guys with Caribbean-Atlantic Airlines — **Dionisio Trigo**, president; **Jose Sierra**, v.p.-operations, and **Frank Sheldon**, v.p.-traffic. For warm, clear water, lots of sunshine and a delightful climate and that away-from-everything feeling, St. Croix can't be beat.

Over in Paris, greetings to **Howard** and **Helen Rough**, he's the CAA's rep and civil air attache, who have rented an historic house on Isle St. Louis near Notre Dame and are having the time of their lives. And beaucoup thanks to **Mimi Romedenne**, the energetic and personable public relations aid with TWA who's great at helping visitors shop and get around the town. And hello to **Mr. and Mrs. R. A. Gratz**, he's the overseas supt. of communications for TWA; to **George Lambert**, Paris manager for TWA; **Bob LaForce**, city traffic manager, **Stan Marcussen** and his oh-so-lovely wife; to **H. F. Rowan** of food service, and **Joe Brumit** in the controller's office whom I missed seeing on the last trip. And a bonjour to **Max Blouet**, the effervescent and able manager of the George V Hotel, mecca of American visitors.

✣ ✣ ✣

Rome to Geneva. In Rome, where can I start? There's **Jean Govoni**, of course, the capable TWA public relations gal and her cute assistant, **Adela Barrachi**. And greetings to **Dick Mazzarini** and his fine family—he's the top TWA rep in Rome and runs LAI on the side. And to **Larry Otavio**, **Martin Shepard**, **Aldo Riggio**, **Carlo Belliero**, all of TWA in Rome. And the good spot I found for fine silk ties of unusual patterns and excellent silk and cashmir scarfs, **Arbiter**, at 84 Via Condotti, a good place to shop. And **Manco**, 53 Piazza di Spagna, which would be the world's finest place to buy women's gloves if Manco would take better care of his customers.

In Athens, hello to **Jack Davenport**, TWA's manager, who dreamed up the A-1 idea of Greek homecoming year in 1951, and to **Bert Hulton**, station manager, and his lovely wife **Danina**, and **Jim Schnell**, maintenance foreman, who asked me a question about the AT-6 which I haven't answered yet; and **Bob Campbell**, an old acquaintance of 15 years who's with ECA there; and to **Col. Leigh Wade**, one of America's most famous flyers who is now air attache at the embassy; and, of course, greetings to my favorite royalty, **Queen Fredericka**. If you want to feel rich, go to Athens. A $10 U.S. bill will bring you 149,290 drachmas on the local exchange. That's what you call real inflation.

On to Geneva and thanks to **Jack Loewenthal**, TWA's station manager (who's now back in the Air Force in Denver), for causing me to see Geneva twice in October. And hello to **Dick Spater** and **Arnold Matthey** of TWA and do you miss **Bill Leslie** who's returned to New York? And to **John Davidson**, whom I saw in Madrid in February, then in Frankfurt, and again in Geneva where he's now station manager. And hey you, at **Patek Phillipe**, how are you coming with my watch, putting on that smart blue dial? I'm anxious to see it. Geneva is a wonderful spot, noted for fine pastry, good food, good scenery, and should I go further? I guess not. And hello to **John Armleder** whose Hotel Richemond can be highly recommended.

✣ ✣ ✣

Christmas in Summer. Down under the equator where it is now summer, greetings to **Leo White** in New Zealand who's made a big success with his White Aviation magazine, aerial photography, travel agency, and goodness knows what else. Leo was mighty good to me in 1944 and one of these days I hope to get back and see him.

In London, my best to **Peter Masefield** and **John Henry** of BEA and the others of a grand organization; and to **Fred Gilman** and **Major McCrindle** and **John Brancker** and others at BOAC; and **Melvyn Sharpe** of de Havilland; and many thanks to **Ernie Lister**, our good U. S. air attache at the embassy, and **Rod Sturtevant** of the CAA in London, and, please, won't somebody in London come up with a really good hotel for my next trip there?

✣ ✣ ✣

Many Thanks. And in Lisbon, many thinks and best greetings to **Jose Cabral**, the famous Portuguese patriot and pilot, who heads up TWA there, and **Raymond Kohler**, city traffic manager. Lisbon is one of the best spots of Europe. And special thanks to **Charles Kolinski**, civil air attache, who was swell to me on two 1950 visits.

And down in Buenos Aires, thanks to the **Plaza Hotel Grill** and **La Cabana Restaurant** for the best food of 1950, and very special thanks and special greetings to **Ricardo Olaran**, flight inspector for the civil aviation department, for giving me a good insight on Argentina aviation. And of course, the magnificent host **George Smith** of Pan Am's Argentine company—a wonderful guy.

And in Lima, where there are so many good people, such as the **C. J. Tippetts**, **Slim Faucett**, **Folger Athearn** of Braniff and his charming wife; the **Jimmy Walkers** and **George Mason** of Panagra and a whole gang of Braniff and Panagra people.

These are but a few. In Asuncion, Rio, Panama, Cuba, London, Prestwick (Hi, **George Simpson** and **Charles Bizzell** of BOAC), Frankfurt, Zurich, Madrid and other spots, good people did fine things for me. Hope you all had a Merry Christmas and hope the new year will be good to you.

(*Continued from opposite page 3*)

PLANES & EQUIPMENT

Airphibian Certificated: CAA on Dec. 21 certificated the Fulton Airphibian, the first roadable airplane to receive CAA approval. The two-seat plane made its first flight in November, 1946. CAA has discussed a proposal with Fulton under which it would rent a number of Airphibians from local dealers to aid in accumulating service experience with the new type.

Boeing Tanker: A tanker version of its C-97 Stratofreighter for in-flight refueling work has been developed by Boeing Airplane Co. Designated KC-97A, plane utilizes boom refueling system now used by Boeing KB-29P tankers already in service. KC-97A can be converted to ordinary cargo use by removing fuel pump and accessory refueling gear.

Modifying Convair: Pan American World Airways has started a $250,000 modification program to increase capacity of its fleet of Convair-Liners. Major modification is strengthening landing gear and adding fuel dumping system which will permit increase in gross take-off weight from 40,500 lbs. to 41,790 lbs. This will minimize condition now existing on some PAA routes where high fuel loads limit passenger loads to less than the 40 seats provided. Modification of the 16 planes will require over a year.

F-94C: Preparations to resume test flying of its thin-winged F-94C (powered by Pratt & Whitney J-48) are being made by Lockheed Aircraft Corp. Tests will be made at jet flight center at San Fernando Valley Airport, Van Nuys. Plane was returned from Edwards AFB several weeks ago for readjustments.

MILITARY

Missile Production: Several types of guided missiles have progressed from the experimental to the production stage, and as a result the Air Force will spend $150,000,000 for missile production in fiscal 1951, about 17 times the amount spent last year, Lt. Gen. **K. B. Wolfe,** Deputy Chief of Staff, Materiel, told the military subcommittee of the House Appropriations Committee.

Air Academy Dropped: Air Force's plans for an AF Academy have been scuttled by House Armed Services Committee, which wrote into a pending public works bill a specific prohibition against constructing the academy at this time. Chairman **Carl Vinson** (D., Ga.) said such plans should be deferred until after the present emergency.

Renegotiation Office: A renegotiation office is being established by the Air Force at 5504 Hollywood Blvd., Los Angeles, and will begin functioning Jan. 1. It is the only field office set up under present renegotiation act by any of the services and is being done because 30% of AF's renegotiable contracts are in the Los Angeles area. **Hayward L. Elliott,** one of the five AF division directors on Armed Services Renegotiation Board is in charge of the office.

Columbus Deadline: Bids for civil contract operation of Columbus AFB, Miss., basic flight school must be received by Jan. 15 at headquarters, Air Materiel Command, Wright-Patterson AFB, Dayton, O., Attn: MCPPXG55. Specifications are almost identical to those previously announced for Greenville AFB. Columbus will have a complement of 450 USAF basic flight cadets and 160 North American T-6 aircraft. Pre-flight training is scheduled to begin with entry of first class on Apr. 17, 1951.

CIVIL AERONAUTICS BOARD

Standard Instrument Panels: Ruling that standardized arrangements of basic flight instruments on all transport planes certificated under transport category rules will be required within one year, and standardized positions of landing gear, flap and power controls and control knob shapes within 18 months, has been made by CAB.

Prototype Committee: CAA is establishing a Prototype Aircraft Advisory Committee, headed by CAA Administrator **Donald W. Nyrop,** to administer the Prototype Aircraft Act. First meeting will be in January at which time draft proposals for initial phases of the program will be considered. Represented on the committee will be Defense Dept., CAB, National Advisory Committee for Aeronautics, Air Line Pilots Association, AIA, ATA and Air Coach Transport Association. One representative will be chosen from four domestic certificated cargo carriers and one from two over-ocean irregular carriers. **Fred Lee,** CAA deputy administrator-program planning, will be Nyrop's alternate on the group.

NAA Meeting: The December meeting of National Aeronautic Association's executive committee accepted resignation of **William R. Enyart,** president of Simmonds Aerocessories Inc., as a director, and elected **John Victory,** executive secretary of National Advisory Committee for Aeronautics, to replace him. Enyart submitted his resignation some weeks ago because he said NAA intended to follow a structural pattern "that has been so unsuccessful for so many years." Elected to other board vacancies were **Benjamin Franklin,** business manager of the Air Foundation; **Melvin Nuss,** president of American Association of Airport Executives; **Ben Regan,** and **Willis Brown.** NAA's 1951 convention will be held in Chicago in June.

Actions

• **National Airlines'** 1951 summer excursion tariff has been suspended pending formal investigation. Though not scheduled to apply until May, 1951, tariff was filed early to get Board ruling on fare level prior to beginning of summer tourist travel. To expedite such ruling, Board consolidated proceeding with current investigation of NAL's proposed DC-6 coach fares which has reached hearing stage.

• **Braniff Airways, Eastern Air Lines, and Mid-Continent Airlines** have been given extra 30 days to negotiate and file interchange agreements called for by CAB in its decision in the Kansas City-Memphis-Florida Case last month. New deadline is Feb. 15, 1951. Agreements are to cover interchange operations between Kansas City and Miami with MCA and Eastern participating and between Denver and Miami with Braniff and Eastern participating.

• **Trans World Airlines and Pan American World Airways** have been issued show cause orders proposing revision of trans-Atlantic mail rates to reflect, among other things, elimination of American Overseas Airlines from the trans-Atlantic picture. PAA's annual mail pay will be upped $4 million to average total of $13,718,000. TWA will get increase of about $750,000 annually raising total to $8,133,000. Other factors contributing to need for revised rates were the adverse affect of foreign currency devaluations and the addition of new foreign points to TWA's and PAA's routes.

• **Hardy Aviation, Inc.,** has been turned down on application for an individual exemption to operate as a large irregular carrier.

• **Northwest Airlines** has been granted an exemption to conduct regularly scheduled services to Pusan, Korea, until such

time as operations may be resumed at Seoul, certificated point on NWA's Pacific route. Authorization is conditioned on NWA's securing necessary operating permission from the Commanding General for Unified Command in Korea, and the United States obtaining necessary rights from the Republic of Korea.

• **Midet Aviation Corporation** granted one-year exemption to conduct regularly scheduled services with multi-engined seaplanes between West Palm Beach, Fla., and Walker Cay, Bahamas, B. W. I. Midet holds letter of registration as a small irregular carrier.

Examiners' Reports

• **Agreement** under which scheduled lines file consolidated air freight tariffs recommended for approval by Examiner Herbert K. Bryan. Approved temporarily by CAB in February, 1947, the agreement has been under investigation by the Board since. Bryan said Board should find that it does not violate provisions of the Act and should be approved on condition that copies of advance tariff filing notices be submitted to CAB.

• **Kenai Peninsula Service Case** report of examiner Ralph L. Wiser contains following recommendations: (a) termination of Pacific Northern's certificate for regular route service to Seward, Alaska; (b) institution of proceeding to determine whether Alaska Airlines' Anchorage-Seward and Anchorage-Seldovia certificates should be eliminated or suspended; (c) issuance of 3-year certificate to Christensen Air Service for Anchorage-Seward service; and (d) issuance of exemptions to Safeway Airways for service to Seward.

Applications and Petitions

• **Aerovias Guest, S. A.** applied for amendment of its foreign air carrier permit to include Hamilton, Bermuda, as an intermediate point between Miami and the Azores on its Mexico City-Madrid route.

• **Wien Alaska Airlines** applied for amendment of its certificate and for immediate exemption authority to operate over following Alaskan routes: (a) Fairbanks circle route via Stevens Village, Beaver, Fort Yukon, Circle, Circle Hot Springs, and Central; (b) Fairbanks-Bettles; (c) Bettles-Wiseman; and (d) Bettles-Alatna-Hughes. In separate application, Wien requested authority to serve Meade River on a direct route to and from Point Barrow.

AIRLINES

TWA Buys Connies: TWA has ordered 10 Lockheed L-1049 Super Constellations at a cost of $16,000,000 with deliveries scheduled for spring of 1952.

NAL Cancels PAA Deal: G. T. Baker, president of National Airlines, has informed J. T. Trippe, president of Pan American World Airways, and Andrew Shea, president of Pan American-Grace Airways, that NAL is withdrawing from stock option agreements under which PAA and W. R. Grace & Co. were eventually to have acquired 48% interest in NAL. Baker added, however, that NAL wishes to provide interchange services with both PAA and Panagra. Agreements have been awaiting CAB approval since May, 1949.

Italy Okays PAA: Italian Government has issued a permit to Pan American World Airways for service to Rome.

Land to Resign: **Emory S. Land,** who was renamed president of the Air Transport Association on Dec. 14, notified the board of directors that he will resign on Dec. 31, 1951. The new ATA board includes **J. H. Carmichael,** president of Capital Airlines; **Robert M. Love,** president of All American Airways; **George Gardner,** president of Northeast Airlines; **T. E. Braniff,** president of Braniff Airways; **J. T. Trippe,** president of Pan American World Airways; **E. V. Rickenbacker,** president of Eastern Air Lines; **C. R. Smith,** president of American Airlines; **W. A. Patterson,** president of United Air Lines, and **Warren Lee Pierson,** board chairman of TWA. Voted into ATA membership were Central Airlines, Ozark Air Lines and Resort Airlines. ATA approved an industry public relations program to be set up by a five-man committee of airline presidents and a steering committee of ATA's public relations advisory committee.

Coach Service Extended: One-year extension of American Airlines and TWA's transcontinental coach services, and six months' extension of Los Angeles-San Francisco coach tariffs of Western Air Lines and United Air Lines have been approved by CAB. All were to expire Dec. 31, 1950. Fares remain the same: $110 New York-Los Angeles and $9.95 Los Angeles-San Francisco.

CONGRESS

Air Treaty Bill: In a surprise move, the Senate on Dec. 15 passed S. 12, which provides that international civil aviation agreements must be approved by two-thirds vote of the Senate and by the President. The bill was first introduced two years ago by Sen. **Pat McCarran** (D., Nev.) and has been opposed by most government agencies because, it is claimed, it would place the U. S. in a poor bargaining position in international negotiations. Passage came during call of the consent calendar, when opponents were off the floor or were caught napping. There is small chance, however, that the House will act before the close of the present session, and the bill does not carry over into the new Congress in January.

LABOR

Colonial Agreement: Colonial Airlines-International Association of Machinists' contract will provide increases of $10 to $60 per month for 250 office and station employes. New agreement runs for one year and supplants contract which expired Nov. 16. Old contract provided base pay of $160 to $210 per month for categories ranging from typists to ticket agents and accountants.

FINANCIAL

Dividends

United Air Lines declared dividend of 75c per share on its 2,069,456 common shares, payable Dec. 27 to stockholders of record Dec. 22. Company's last common dividend was in 1946. Dividend action was based on what appears to be relatively higher earnings than UAL has accomplished in recent years, made possible by record traffic volume and improved overall operating efficiency, **W. A. Patterson,** president, said.

Braniff Airways declared 25c dividend on common stock, the first since 1946. Company officials have estimated 1950 net profit will be at least $1,100,000, consisting of a profit of over $2,000,000 on domestic division and $347,300 loss on international division, with system result subject to estimated income taxes of $646,000.

Manufacturing

Aeroquip Corp. reported net earnings of $734,508 on net sales of $7,035,492 for year ended Sept. 30, compared with $594,765 profit on $6,021,217 sales in preceding year. Company's backlog is now over $6,000,000, against $1,000,000 earlier this year.

AROUND THE WORLD

People: **Rafael Arraiz,** who has been general manager of New York office of Linea Aeropostal Venezolana, has been appointed director (president) of the Venezuelan airline. He will be headquartered in Caracas. **Luis Navas,** formerly LAV chief of maintenance at New York International Airport, will act as New York manager. Arraiz succeeds Lt. Col. **Guillermo Pacanins** . . . **A. R. McComb,** Deputy Secretary General of International Civil Aviation Organization, will leave ICAO at the end of 1950 to take up a post with his government in Australia.

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a LOOK at the WEEK

Airframe industry is not happy about infiltration of automobile manufacturers. Belief is that new Pentagon policy of bringing in car builders in early stage of mobilization and saving already-prepared mobilization plans of airframe builders until the all-out stage is reverse of sound production policy. Some industry people think pressure politics of labor leaders, top administration officials, etc., had much to do with policy's establishment.

•

Manpower is becoming greater problem in aircraft industry. Labor is getting tight everywhere and with new plants opening, situation is becoming serious. Manufacturers who have had mobilization plans delayed to let auto builders get started on aircraft feel that labor market will be practically non-existent by the time they are called upon to implement their plans.

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Draft development: many industrial relations men seem resigned to possibility of losing everyone 25 years old and under regardless of jobs. They ask few deferments; they're generally refused anyway.

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Observers predict overhaul of Defense Order (DO) Rating system under new mobilization set-up.

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With establishment of Office of Defense Mobilization, best guess at the moment is that National Security Resources Board, no longer the top policy board. will be considerably reduced. with personnel going to ODM and other agencies, and that NPA, Petroleum Defense Administration, etc., will be consolidated under ODM.

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National Security Resources Board has followed tough policy in acting on requests for five-year amortization for tax purposes of new defense plant construction. No aviation cases have come up yet, but other industries are finding that requests aren't 100% granted if new plants would have any peacetime use.

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Air Coordinating Committee is circulating a draft of the long-range plan for insuring adequate supply of planes and parts for airlines and other civil users. Announcement is expected shortly.

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CAB's aim is to have all airlines operating on permanent mail rates in 1951. Many are still on temporary rates.

Auto Makers to Produce Planes

Closely following the deal under which Kaiser-Frazer will build Fairchild Packets at Willow Run, it was revealed that two more automobile manufacturers will enter the aviation field and that an airframe maker will implement its mobilization plan to build another company's plane.

Developments to date are:

General Motors Corp.: Will build Republic F-84F jet fighters at its Kansas City, Kans., plant, now being used for automobile assembly. Plant, which was used during World War II by North American Aviation for B-25 bomber production, is an Air Force industrial reserve plant with a recapture clause in GM's contract. GM, which now has about 5,000 employes at the plant, will start tooling immediately and convert gradually until auto production is eliminated.

Studebaker Corp.: Will build jet engines. Air Force has not revealed type or current manufacturer. Both GM and Studebaker are in final stages of negotiation for necessary licenses.

Douglas Aircraft Co.: Will build Boeing B-47 jet bombers under license at reserve plant to be reopened at Tulsa, Okla. The government-owned plant, used by Douglas in the last war, is now being used for office and storage space.

Avco Manufacturing Co.: Will re-emphasize its aviation work under mobilization plan by building airframe components under subcontract. Licensor was not disclosed.

Airline Planes, Parts Cleared

National Production Authority was preparing to take final action as this issue went to press on necessary authorizations covering manufacture of about 206 two and four-engined transport planes for domestic and foreign airlines. Also cleared will be spare parts for the planes. The 206 were described as those on order on June 25, when Korean war started. They include Douglas DC-6's, Lockheed Constellations, and Martin 404's. Planes ordered after June 25 will require separate NPA clearance, it was said.

Liaison Competition

Air Force's liaison plane competition, with winner slated to receive initial order of 40 to 150 planes and larger orders later, is now through the flight test phase, and Air Materiel Command will conduct evaluation of planes' performance, construction characteristics, etc. Decision on winner should be reached in early February. Although over two dozen companies had signified intention to compete, only eight entries actually completed flight tests: Ryan Navion 260, Helio Corp. Super Four, Cessna 195, de Havilland DHC-2 Beaver, Bellanca Senior Skyrocket, Aero Design Aero Commander, Atlas H-13 and Aquaflight's Aqua II.

AF to Spend $6.6 Billion in Fiscal '51

A total of $6,615,926,472 will be spent by the Air Force in fiscal 1951 for all types of plane procurement, including spare parts, electronics, guided missiles, aircraft modernization and other items, as well as procurement of complete aircraft. The total reached $6.6 billion with

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passage of the second 1951 supplemental appropriation which added $2,114,700,000 to the $4,501,226,472 procurement money contained in the original 1951 appropriation and the first supplemental.

Break-down of the total follows:

Complete aircraft	$3,017,392,612
Aircraft component spares and spare parts	2,055,222,084
Related aircraft procurement	673,465,017
Major modification and modernization	219,819,287
Guided missiles	149,993,000
Industrial mobilization	79,840,000
Procurement and production administration	32,235,000
Electronics and communications equipment	397,959,472
TOTAL	$6,615,926,472

The guided missiles appropriations contained the largest percentage increase over the 1950 budget because of the fact that several experimental missiles have now reached the production stage. The industrial mobilization money represents a five-fold increase over last year. About 75% of the increase is due to increased procurement of machine tools and production equipment for reserve stocks for mobilization needs.

MANUFACTURERS

Doubts Increase: President Truman's call for a five-fold increase in plane production within a year "manifestly is not within the capabilities of the aircraft industry alone," and can only be obtained by maximum cooperation from supplying industries and government agencies concerned, according to Adm. **DeWitt C. Ramsey,** president of Aircraft Industries Association. Increase would require a degree of expansion far greater than was found possible in World War II, he said, adding that production in May, 1940, when President Roosevelt called for 50,000 planes, was 1,900,000 airframe pounds monthly; a year later it was 6,229,000 lbs., or little more than a three-fold increase. Output at present is under 4,000,000 lbs., or about 250 plane units, he said.

Lear Order: Another $8,000,000 worth of Air Force orders for the F-5 automatic pilot and automatic approach coupler have been received by Lear Inc. Company's backlog is now over $25,500,000, most of which is for F-5 production. **William P. Lear,** board chairman and director of research, won the 1950 Collier Trophy for development of the F-5.

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Ryan Backlog: With new contracts totaling over $4,000,000 received in the last 30 days, Ryan Aeronautical Co.'s backlog now exceeds $25,000,000. Employment is now over 2,500 and an intensive hiring program is underway to reach 4,000 workers by July.

Jet Test Base: Los Angeles County board of supervisors has approved lease of a site for a jet flight test base at Palmdale Airport by Lockheed Aircraft Corp. Company will spend about $400,000 for a hangar, aprons and other facilities and upon their completion in late 1951 will transfer final delivery flights of jet planes from San Fernando Valley Airport at Van Nuys.

People: Capt. **David R. Hull,** USN (Ret.) has been elected vice president of Raytheon Manufacturing Co., Waltham, Mass. . . .

PLANES & EQUIPMENT

F-84F: A British Armstrong Siddeley Sapphire jet engine will be fitted in the Republic F-84F for test flight next spring. Engine has 7,200 pounds thrust.

Advanced Wasp: An advanced model of the Wasp Major piston engine which will deliver 4,300 hp compared with 3,800 hp in the latest service models of the engine is being developed by Pratt & Whitney Aircraft Division of United Aircraft Corp.

Turbo-Liner Tests: Taxi tests of the Turbo-Liner, first turbo-prop airline type transport, were started Dec. 27 at Consolidated Vultee Aircraft Corp.'s San Diego plant, and first flight is expected within a few days. Plane is Convair 240 powered by two Allison Model 501 2,750-hp turbo-prop engines. It was purchased by Allison Division of General Motors Corp. to run extensive tests on the engines and to use as a demonstrator.

Douglas Starts R4D-8's: Four R4D's have been received by Douglas Aircraft Co. from the Navy for conversion into R4D-8's (Super DC-3's with long-range tanks) but won't get into volume production on the 100-plane order until well into next year. First deliveries are scheduled for mid-year.

Door Patent: Patent rights to a newly-developed retractable airplane door and entrance stairway have been assigned to Consolidated Vultee Aircraft Corp.

B-47B Trainer: A $2,000,000 Air Force contract to build an undisclosed number of trainers simulating the Boeing B-47B jet bomber has been received by Link Aviation Inc. Deliveries begin in late 1951.

New XC-99 Gear: The XC-99, Consolidated-Vultee's transport version of the B-36 bomber, has been temporarily withdrawn from service to permit installation of a new type landing gear, identical to B-36 gear and more rugged than the one now on XC-99.

MILITARY

Beavers Ordered: Air Force has taken delivery on two Canadian-built de Havilland DHC-2 Beaver light monoplanes for field testing in Alaska. It had been previously revealed that Army Field Forces had ordered four of the planes. The Beaver, which carries a pilot and six passengers, is powered by a Pratt & Whitney R-985 engine.

13 More Bases: Air Force will open the following bases within the next year: Amarillo Airport, Tex.;

Burlington Airport, Vt.; Camp Wolters, Mineral Wells, Tex.; Duluth Airport, Minn.; Geiger Field, Spokane, Wash.; Lockbourne Air Base, Columbus, O.; McGhee-Tyson Airport, Knoxville, Tenn.; Niagara Falls Municipal Airport, N. Y.; Oxnard Airport, Calif.; Paine Field, Everett, Wash.; Suffolk County Airport, Westhampton, N. Y., and Truax Field, Madison, Wis.

ATC Reopens Luke: Air Training Command has reopened Luke Air Force Base, Phoenix, Ariz., which was an advanced single-engine pilot training field during World War II and has been inactive as a standby base since the war.

AF Contracts: The following negotiated contracts of $100,000 or more have been awarded by the Air Force: Hoffman Radio Corp., Los Angeles, $2,761,725, radio receiver transmitters; Eclipse Pioneer Div., Bendix Aviation Corp., Teterboro, N. J., $433,109, engine pressure instruments; Denison Engineering Co., Columbus, O., $264,105, kits; Aro Equipment Corp., Trevitt & Enterprise, Bryan, O., $138,020, pneumatic drills; Welded Construction Co., Cleveland, $146,074, dolly assemblies; Eltron Inc., Jackson, Mich., $145,849, mixer amplifier and mounting plates; Douglas Tool Co., Detroit, $112,475, automatic profile shaping machine; North American Aviation Inc., Los Angeles, $100,000, plane modification kits; Fairchild Aircraft Div., Hagerstown, Md., $100,000, aircraft kits; Cincinnati Milling and Grinding Machines Inc., Cincinnati, $251,636, horizontal milling machines; Jack & Heintz Precision Industries Inc., Cleveland, $240,000, generators; S. Buchsbaum & Co., Chicago, $156,612, emergency substance kits; Gould-National Battery Co., Depew, N. Y., $136,358, aircraft batteries; Electric Storage Battery Co., Cleveland, $228,856, aircraft storage batteries; Westinghouse Electric Corp., Dayton, O., $905,001, generators; Continental Motors Corp., Muskegon, Mich., $600,000, engines and spare parts; Lockheed Aircraft Corp., Burbank, $100,000, kits, miscellaneous assemblies and sub-assemblies for aircraft.

AIRLINES

Resort-Nationwide: Resort Airlines, certificated tour operator, intends to acquire assets and key personnel of Nationwide Air Transport Services, large irregular carrier based in Miami Springs, Fla., and has asked CAB for an exemption from Civil Aeronautics Act which would otherwise require Board approval of the transaction. Nationwide has agreed to surrender its letter of registration as a large irregular and to cease air transport operations on or before closing date. Resort will issue 2,000,000 shares of its common stock to Nationwide and will appoint **R. Paul Weesner,** former president of the non-sked, to the position of executive vice president in charge of general operations. Weesner recently resigned as executive vice president and director of Lake Central Airlines. **L. C. Burwell** will remain as Resort's president and is expected to open a Washington office soon. Acquisition would increase Resort's fleet to nine C-46's, three DC-4's and three DC-3's.

Braniff Orders DC-6's: Braniff International Airways has placed a $3,000,000 order with Douglas Aircraft Co. for three 52-passenger DC-6's powered by Pratt & Whitney R-2800 engines with jet exhaust stacks for added speed.

C&S Sells DC-4's: Chicago and Southern Air Lines' two remaining DC-4 aircraft have been sold to Resort Airlines, subject to delivery of Lockheed Constellations C&S is scheduled to receive in spring of 1951. Sale was made through Central Purchasing Agency, Miami.

PAA Answers NAL: Pan American World Airways' directors were "astonished" to learn that National Airlines was canceling the stock option agreements under which PAA and W. R. Grace & Co. were eventually to have acquired 48% interest in NAL, **J. T. Trippe,** PAA president, said in a letter to **G. T. Baker,** NAL president. "They are quite at a loss to understand how you believe that National is in a position, by unilateral action, to terminate the contracts . . ." Trippe stated.

PAA Record: The 1950 traffic volume has been the greatest in its 24-year history, Pan American World Airways reports, adding that during the year it carried over 1,000,000 passengers and 50,000,000 lbs. of cargo, in addition to 17,424 troops transported to Korea and 4,054,763 lbs. of military cargo moved.

People: **A. Joseph Hunt,** vice president of Aircraft Engineering and Maintenance Co. and executive assistant to the president of Transocean Air Lines, has resigned to become vice president-contracts and sales for California Eastern Airways . . . **Ben Wright** resigned as American Airline's public relations director to join *Field and Stream* magazine . . . **Les Barnes,** who has been assistant director of Air Transport Association's air navigation and traffic control division, has been appointed director of operations in ATA's operations and engineering department . . . **Joseph O'Brien** has been renamed executive director of the Airlines Personnel Relations Conference . . . **Robert Miller** has been re-elected president of Air Line Terminal Corp., which operates the Willow Run terminal, Detroit . . . **Alex Smith,** who has been with Hawaiian Airlines since 1932, has resigned as vice president and secretary of the company to become business manager of Queen's Hospital, Honolulu . . . **Warren R. Mellin,** United Air Lines' superintendent of regulations, reports and forms, has been named assistant to **Otis E. Kline,** UAL's executive vice president . . .

CIVIL AERONAUTICS BOARD

New CAB Bureau: Latest CAB reorganization under Chairman **D. W. Rentzel** is creation of a Bureau of Air Operations which will have primary responsibility for functions of the Bureau of Economic Regulation, which is being dissolved. Also transferred to the new bureau are certain legal activities of the General Counsel's office, which will now devote its time chiefly to high-level policy law making. Director of the new bureau has not yet been announced.

Applications and Petitions

- **Samoan Airlines** applied for a certificate to operate between Pago Pago, American Samoa, and Canton Island. Request was an amendment to a previous application in which carrier sought route between Pago Pago and the British Samoan point of Apia.
- **Trans-Air Hawaii,** non-certificated cargo carrier, applied for certificate between Honolulu, T. H. and American Samoa via Canton Island and British Samoa. Carrier asked authority to transport passengers, property, and mail over proposed route and requested consolidation of its application with that of Samoan Airlines.
- **Trans World Airlines** applied for an exemption to carry passengers, property, and mail on flights now operating between U. S. terminals and the Azores. Present U. S.-Lisbon flights of TWA make stop at the Azores but only for local traffic between that area and Lisbon. Pan American World Airways now operates three weekly U. S.-Azores flights and TWA proposal is for two weekly flights.
- **Eastern Air Lines** applied for new Memphis-Paducah-Louisville route stating that construction of 500 million dollar atom bomb plant near Paducah makes that point "one of the most important defense manufacturing centers in the world." Proposal is in addition to earlier one filed by Eastern for inclusion of Paducah as intermediate point on Route 10 between St. Louis and Nashville.

• **Empire Air Lines** asked immediate exemption to extend local service route from Pasco-Kennewick-Richland, Wash. to Yakima and Seattle. It would be Empire's first outlet to West Coast and would set up direct route between Walla Walla and Seattle, a route served for past four years by Inland Airways, Inc., a Washington intra-state carrier.

• **Trans World Airlines and Warren Lee Pierson** filed applications for approval of interlocking relationships arising out of Pierson's serving as chairman of board of TWA and as a director of Linee Aeree Italiane, the Italian national airline. Pierson was elected a director of LAI on May 10, 1950, subject to CAB approval, but is to serve in that capacity only as a representative of TWA which holds 40% interest in the Italian line.

Actions

• **Capital Airlines** granted 60-day emergency exemption for greater flexibility in scheduling one remaining C-54 all-cargo plane. With two of its four C-54's committed to Pacific air lift and a third unusable pending repairs, Capital sought and was granted authority to: (a) serve Chicago on Twin Cities-New York flights; (b) operate one-stop service between Chicago and New York; and (c) operate non-stop between Detroit and New York. A restriction, however, prevents carriage of local cargo between Chicago and Twin Cities or Milwaukee on same flight.

• **Cook Cleland Catalina Airways'** application for an individual exemption to operate as a large irregular carrier denied by CAB. Board said the line has conducted no irregular operations for at least a year and has not established that there is a public need for services contemplated by its application.

• **Stewart Air Service**, Los Angeles-based non-sked, was issued an individual exemption to operate as a large irregular carrier for two years.

• **Northwest Airlines** granted a 90-day exemption to serve Chicago as an intermediate point between Milwaukee and Detroit on all-cargo flights on segments 1 and 2 of Route 3. Move is to permit more flexibility in scheduling NWA's one remaining C-47 all-cargo ship. Carrier's other two cargo aircraft—both C-54's—are committed to Korean airlift.

• **Alaska Airlines** granted exemption to transport mail between Fairbanks and Circle, Alaska, via Circle Hot Springs and Central. Action is to prevent termination of air mail service over the route on Dec. 31, 1950, when Alaska Airlines' Star Route Contract expires. Exemption is good until CAB issues certificate for the service.

• **North Central Route Investigation** will be confined to local service routes as CAB changed scope to eliminate possible trunk-line certification of Mid-Continent Airlines to and from Chicago. Move is expected to prevent case from growing into a large scale area proceeding. It is now confined to possible suspension of MCA's local service Route 106 and reawarding of the route to a local service carrier.

• **Pan American World Airways'** petition for reconsideration of CAB decision in PAA Domestic Routes Case denied by CAB. PAA had asked that Board reconsider and defer action on Boston-New York-Miami application until ready to make decision in National Airlines Dismemberment Case.

• **Resort Airlines** ordered to cease and desist from violations of Civil Aeronautics Act which led to investigation earlier this year. Resort's operations between New York and Lake Placid/Saranac Lake and between New York and various southern U. S. resort areas had been complained of by Eastern Air Lines and Colonial Airlines. Resort, however, consented to issuance of the cease and desist order which, among other things, prohibits unauthorized operations and cessation of "unfair competitive practices."

CAB Calendar

Jan. 3—Hearing in American Air Transport Sec. 291 Exemption Case. Washington, D. C. (Docket 3908).

Jan. 8—Hearing in Miami Airlines Sec. 291 Exemption Case. Washington, D. C. (Docket 3844).

Jan. 8—Hearing in Additional Service to Kansas Case. Tentative. Postponed from November 20. (Docket 3758 et al.).

Jan. 9—Oral argument before the Board in New York City Area Helicopter Service Case. Washington, D. C. (Docket 946 et al.).

CIVIL AVIATION

Flight Plans: CAA has announced that flight plans will be mandatory for planes entering or flying within designated air defense identification zones. In zones in the U. S. interior, plans and position reports will not be required if aircraft stay below 4,000 ft. above the terrain, but they will be mandatory regardless of altitude in Atlantic, Pacific and International Boundary zones.

LABOR

Mediator Assigned: A National Mediation Board mediator has been assigned to the dispute between maintenance employes and port stewards of Pan American World Airways and the company over demands for a wage increase. The employes, represented by Transport Workers Union-CIO, have threatened to strike. NMB is also attempting to learn the basis for dispute between TWA navigators and the airline.

New Contract: A 40-month contract, providing 14c per hr. wage increase for all employes effective Oct. 2, has been signed by Hamilton Standard Division of United Aircraft Corp. and International Association of Machinists. A 3c cost-of-living increase effective Dec. 18 was also granted in accordance with escalator clause in the contract. Annual improvement factor increases of 4c per hr., effective September, 1951 and September, 1952, are provided, plus a second-shift premium of 7½c, revised group insurance plans and revised seniority provisions.

IN GENERAL

Cadmium Restricted: A National Production Authority order (M-19) has restricted use of cadmium exclusively for defense and highly essential needs, effective Jan. 1.

Order on Electronics: An order (M-17) placing a ceiling on the number of defense rated orders for certain electrical components and parts for both defense and maintenance of the U. S. communications system, aircraft safety and other essential uses of electronic equipment which manufacturers are required to accept has been issued by National Production Authority. Purpose is to prevent unnecessary disruption of distribution to civilian users by equalizing distribution of defense orders among electrical component and parts manufacturers. Types and percentages: electronic tubes (except power tubes) if produced by only one company, 50% ceiling; if produced by two or more companies, 25%; fixed composition resistors, 25%.

Skuce Joins NPA: **Walter C. Skuce,** transportation manager of Owens-Corning Fiberglas Corp. and wartime director of War Production Board's Controlled Materials Plans Division, has been appointed National Production Authority staff assistant to direct the Production Controls Staff organization. He will take charge of current NPA activities leading to development of a centralized control plan similar to the CMP of World War II.

COMING UP

Jan. 2-7—Miami Aviation Week, Miami, Fla.

Jan. 6-7—Annual Miami Air Show, Opa Locka Airport, Miami, Fla.

Jan. 8-10—8th annual Miami-Havana air cruise.

Jan. 8-12—Society of Automotive Engineers annual meeting and engineering display, Hotel Book-Cadillac, Detroit, Mich.